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УО «Витебский государственный медицинский университет»

ОБЩЕСТВЕННОЕ ЗДОРОВЬЕ И ЗДРАВООХРАНЕНИЕ

PUBLIC HEALTH AND HEALTH SERVICE

пособие

Рекомендовано учебно-методическим объединением по высшему медицинскому, фармацевтическому образованию в качестве пособия для студентов учреждений высшего образования, обучающихся по специальности 1-79 01 01 «Лечебное дело», 1-79 01 07 «Стоматология»

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Пособие «Общественное здоровье и здравоохранение» на английском языке по дисциплине соответствует типовому учебному плану и типовой учебной программе по предмету, утвержденным Министерством здравоохранения Республики Беларусь. Пособие содержит актуальную информацию о мировой системе здравоохранения и ее составляющих.

Пособие предназначено для студентов факультета подготовки иностранных граждан с английским языком обучения, стоматологического факультета с английским языком обучения, интернов, клинических ординаторов, врачей, слушателей ФПК и ПК, врачей общей практики, магистрантов, аспирантов и соискателей ученых степеней высших медицинских учреждений образования, изучающих общественное здоровье и здравоохранение на английском языке.

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CONTENT

FOREWORD

Public health is a national value that is above political, economic, religious, and other priorities. It is the driving force of socio-economic progress, a condition of social development. Healthy people can work productively, lead an active lifestyle. The person himself, the state and society are responsible for the health of the population. People wanting to preserve their health, unfortunately, least of all cherish it. Preserving the health of the population is the main purpose of health care, but the population must assume responsibility for their health.

Health care is the non-productive sector of the national economy. The result of its work is the birth of new generations of healthy children, the preservation of public health, the prevention of diseases, the restoration of lost work capacity. Health care through the preservation of labor resources is involved in the production of material goods, strengthening the military and economic power of the state, ensuring social stability in society. The most important task of the health care system is to cultivate a culture of health for each individual citizen and nation as a whole.

The health care system of the Republic of Belarus has been operating for several years in the conditions of a country's transition to a market economy. The ongoing health care reforms are aimed at ensuring the primacy of primary health care. In the Republic of Belarus, as in other countries, it is not possible to contain the growth in health care costs. Therefore, non-governmental health organizations, organizations of mixed ownership, as well as individual entrepreneurs, operate along with state organizations.

Traditionally, a man educated, intelligent, with multifaceted interests, decent manners, knowledgeable art, literature, well-trained in the specialty is associated with the image of a doctor. He must systematically work on improving knowledge and skills, become familiar with the medical literature, participate in the professional discussion of new achievements in his profile and related specialties.

A feature of the discipline "Public Health and Health Service" is that it can give a generalized comprehensive assessment of public health, determine the ways and prospects for the development of health care. Using its methods, the work of both medical organizations and individual specialists is assessed. It lays the foundation for scientific synthesis and dissemination of best practices in the field of health organization. Therefore, the study of this discipline is necessary for future doctors, regardless of their chosen specialty later.

The material of this textbook is based on the principles of the state policy of the Republic of Belarus in the field of public health. The manual reveals the main issues of the curriculum for the discipline "Public Health and Health Service", and also gives a description of the socio-economic processes that affect the health of the population and the activities of health organizations.

Team of authors

CHAPTER 1
PUBLIC HEALTH AND HEALTH SERVICE AS A SCIENCE, ACADEMIC DISCIPLINE, PRACTICAL FIELD

At a certain stage in the development of human society, the prerequisites for the emergence of the science “Public Health and Health service” were created. This is an independent medical science that studies the impact of social conditions and environmental factors on public health and the activities of the health care industry with the goal of developing preventive measures and improving medical services.

1.1. The history of the emergence and development of science, academic discipline "Public Health and Health Service"

The social aspects of medicine were of interest to prominent doctors of antiquity: Plato, Aristotle, Hippocrates, Avicenna, and many others. The whole history of healing, beginning with the slave-owning era, testifies to the tireless attempts to cure and, most importantly, prevent mass, infectious, parasitic and especially dangerous epidemic diseases. However, without revealing the scientific basis, i.e. without identifying the true causes of these diseases, it was impossible to count on cardinal success in combating them. No theory of the origin of these diseases, such as the notions of "miasma," "monad," or even "contagion," were able to reveal their true causes until the era of bacteriology came, when microorganisms causing infectious diseases were detected with a microscope. This discovery of the XIX century marked the beginning of the study of immunity and, on its basis, of vaccination and other effective steps in the treatment and prevention of mass infectious diseases.

However, this circumstance alone was not enough to successfully combat mass diseases. Effective measures were required on a mass scale, in relation to the entire population or its large groups — social, professional, property, etc. Only the state, its bodies, institutions were able to organize and implement such a struggle in practice on a national scale, using the achievements of science, including bacteriology and hygiene. This required a government structure (service) capable of managing public health. Only with the emergence of a capitalist society the state was able to create public health services.

In Russia, since the creation of the Pharmaceutical Order during the reign of Ivan the Terrible (1581), public health was primarily a state. At first,

foreigners were invited to Russia. They were few, so they provided medical assistance only to the king, his family and the nearest boyars.

Under Emperor Peter I, the formation of the Russian school of medicine began. Management of the medical business in the state was entrusted to the Medical Office (1721). In the second half of the seventeenth century, this function was transferred to the Medical Board. Observation of medical and medicinal assistance to the population, management of the training of medical personnel, control over the activities of public and private pharmacies were the tasks of this government body.

At the beginning of the 19th century, the Medical Department of the Ministry of the Interior was in charge of the administration of health care. Medical and sanitary control became its main activity. In 1864, zemstvo medicine originated in Russia. It was a system of organization of medical care, which had no analogues in the world.

The development of social hygiene (at present - public health) in Russia has its own historical sequence. Interest in the problems of preservation and health promotion began to manifest itself in the XVIII c. Progressive scientists and statesmen of that time did a lot to develop the foundations of social hygiene. An important role in the development of social and hygienic ideas belongs to M.V. Lomonosov (1711-1765), who developed a program to organize assistance to children and combat child mortality. He stressed that the fight against child mortality is the main task of the state.

The formation of social hygiene as a separate science occurred in Russia in the twentieth century. For example, in Kazan University in the 60s prof. Alexander Vasilyevich Petrov lectured to students on public health and public hygiene. In the 70s there same prof. A.P. Peskov read a course of medical geography and medical statistics, in essence - public hygiene. Subsequently, similar courses were introduced at the medical faculties of universities in Moscow, St. Petersburg, Kiev, Kharkov.

Social hygiene in the USSR begins its history with the organization in 1918 of the museum of social hygiene of the people's commissariat of health of the RSFSR, whose director was a famous hygienist prof. Alfred V. Molkov. The museum, and from 1920 - the Institute of Social Hygiene became the center for the formation of a new discipline, which was to take everything progressive from its predecessors - the public hygiene of Russia, the social hygiene of A. Grotyan, A. Fisher and its other representatives abroad.

In 1922 with the support of reputable scientists and public hygiene workers, N.A. Semashko organized a department of social hygiene with a clinic for occupational diseases at I Moscow University. A year later (in February 1923) Z.P. Soloviev and his staff created the Department of Social

Hygiene at the Medical Faculty of Moscow University II. Hygiene, epidemiology and others were taught here. Almost simultaneously, similar departments were established at the medical faculties of universities in Leningrad, Kiev, Voronezh, Kazan, Saratov and other universities.

The first program of social hygiene included four main sections: the method of social hygiene, problems of collective life, social pathology, organizational problems of health care. The main drawback of the program was a very small amount of materials on the organization of health care.

In the development of social hygiene periodically published collections "Social hygiene" played a big role. In 1927 and 1930 the first domestic guide "Social Hygiene" was published in two parts. In 1941, the first renaming of the department of social hygiene occurred. The new name was the Department of Health Organization. Practical healthcare problems began to prevail in the discipline program. The main attention of the collectives of the departments is focused on conducting research on the negative consequences associated with the war, on developing ways to improve the population, on reducing mortality, increasing the birth rate, etc. The teaching of health and health statistics has become predominant.

An important step in the development of medical science was the establishment in 1944 of the Academy of Medical Sciences of the USSR. The first president of the Academy is N.N. Burdenko. As part of the Academy in 1945, the Institute for the Organization of Health Care and the History of Medicine was formed.

In 1966, by order of the USSR Minister of Health, Academician B.V. Petrovsky Department of Health Organization renamed the Department of Social Hygiene and Health Organization (second renaming). The new task of the department was to teach future doctors social and hygienic thinking, the ability to solve organizational issues. In accordance with the objectives the curriculum has been redesigned. In 1977, the textbook "Social hygiene and organization of health care", edited by A.F. Serenko and V.V. Ermakova was published.

Today, the discipline "Public Health and Healthcare" is taught in medical schools of the world in independent or joint departments. Independent departments are organized in educational institutions of the Republic of Belarus, the Russian Federation, Great Britain, France, the USA and other countries. Curricula in the subject, as a rule, include the study of medical statistics, demography, morbidity of the population, the activities of medical organizations, health management, etc.

In 1984, V.V. Ermakov and A.F. Serenko formulated the following definition of discipline. Public health is the health of the population, due to the complex impact of social, biological factors, the environment, assessed

by demographic indicators, characteristics of physical development, morbidity and disability, with the decisive significance of the socio-political and economic system.

In 2000, adjustments to this definition were made by the heads of departments of the organizational profile of medical schools. Thus, public health is the most important economic and social potential of a country, due to the impact of various environmental factors and the way of life of the population, which allows for an optimal level of quality and safety of people's lives.

1.2. The content of the discipline "Public Health and Health Service"

The theory and practice of public health and health care are determined by many factors. The most important among them are the state of people's health, the need for medical care, the state of the environment, including the social environment, the level of development of the economy, public relations, etc.

Thus, public health and health service:

- justifies the state policy in the field of public health, provides scientific proposals for building a health system;
- is an integrating science, uses the methods of research of many sciences, introduces a social aspect to all medical disciplines with which it interacts;
- with the support of the state implements the developed preventive measures among the population;
- provides the authorities and government bodies of scientifically-based information for decision-making on the preservation and strengthening of public health;
- justifies ways to further improve the health care system.

In contrast to clinical medical disciplines, public health and health service studies the health of not individuals, but human groups, social groups of the population, society as a whole, as well as the activities of health organizations.

The object of study is the team, social group, population of the country, of the globe, as well as the health care system providing them.

The subject of study is the health of the collective, social group, population of the country, world population, depending on the environmental

conditions, as well as indicators characterizing the activities of health organizations and the health care system in general.

Public Health and Health Service **objectives:**

1) studying the state of public health and the influence of lifestyle, social and other factors on it;
2) development of methods for studying public health;
3) justification of the state policy in the field of healthcare;
4) development and practical implementation of measures aimed at improving the demographic situation and public health;
5) upbringing and training future doctors, developing students' managerial skills, management decision-making skills;
6) training and professional development of medical workers, including health care organizers;
7) development of organizational forms and methods of medical care and public health management;
8) making suggestions for improving national health legislation.

The structure of public health and health service as a subject of teaching:

- health service history;
- theoretical problems of health and medicine;
- legal aspects of medical practice;
- medical statistics;
- public health and methods of studying it;
- prevention issues;
- organization of medical care to the population;
- health economy, planning, financing;
- health management;
- social assistance problems.

The methodological base of public health and health service includes its own methods and methods, as well as borrowed from a number of related sciences.

The statistical method makes it possible to establish and objectively assess the changes in the state of health of the population and to determine the effectiveness of the health authorities and institutions.

The method of expert assessments allows to make forecasts on the basis of pre - formulated regularities, for example, it is possible to foresee the future birth rate, population size, mortality, mortality from cancer, etc.

The historical method is a descriptive method. It is based on the study and analysis of the processes of public health and health at different stages of human history.

The method of economic research makes it possible to establish the impact of the economy on health and, conversely, health on the economy of society. The sources of health service financing and the issues of the most effective use of these funds are studied and analyzed. To study the impact of socio-economic factors on human health, the methods used in the economic sciences are used. These methods are directly applied in the study and development of health issues such as accounting, planning, financing, health management, rational use of material resources, scientific organization of work in health authorities and institutions.

The experimental method is a method of search of new, most rational forms and methods of work, creation of models of medical care, introduction of best practices, verification of projects, hypotheses, creation of experimental bases, medical centers, etc.

The method of observation and survey. To supplement and deepen these data, special studies can be undertaken. For example, to obtain more in-depth data on the incidence of certain professions use the results obtained during medical examinations of this contingent. To identify the nature and extent of the impact of social-hygienic conditions on morbidity, mortality and physical development can be used survey methods (interviews, questionnaire method) of individuals, families or groups of people on a special program.

The method of survey (interview) can provide valuable information on a variety of issues: economic, social, demographic, etc.

Epidemiological method. An important place among the epidemiological methods of research is epidemiological analysis. Epidemiological analysis is a set of methods for studying the characteristics of the epidemic process in order to determine the causes that contribute to the spread of this phenomenon in this area, and to develop practical recommendations for its optimization. The epidemiology of noncommunicable diseases studies the causes and incidence of noncommunicable diseases in order to develop preventive measures and reduce the prevalence of these diseases.

CHAPTER 2
HEALTH. HEALTH SYSTEMS

2.1. Health. Definition of concept

Health service is a branch of activity of the state, the purpose of which is the organization and provision of affordable health service (Source: ***article 1 Of the Law of the Republic of Belarus "On Health Care"***).

Health service is a system of state, public and medical measures aimed at the prevention and treatment of diseases, strengthening the health of the population.

The concept of health focuses on 3 points:

1) social activities of the state-the duty of public structures to promote health

2) a set of views emerged throughout the history of disease and public health.

3) a set of people's actions aimed at treatment, prevention and health promotion

Unlike health service, medicine is a system of scientific knowledge and practice, the purpose of which is to strengthen and preserve the health of the population, the prevention and treatment of diseases, the extension of people's lives – a broader concept.

Health service-interaction of three components:

1) management body:

A. *Central* – Ministry of health;

B. *Local* – regional departments of health, the Committee of the Minsk city Executive Committee.

2) health-service institutions;

3) human capacity of the health system.

2.2. The history of the health service

In the ancient world, there were already schools of doctors, sanitary control over the state of markets, wells and attempts to regulate the activities of such activities (Sparta, Muslim countries). Until the 16th century there was

no strict health service system. In the 16th century the first attempts of medical personnel training and education hospitals.

Since the adoption of Christianity, medical care has been concentrated in monasteries ("charity societies"). In Russia in 1581 a separate decree of Ivan the terrible established Tsarev pharmacy, which provided medical assistance to the Tsar and the family, and later the boyars. Then it was renamed the pharmacy order», which ran the noble pharmacies. In 1654 the first school of medicine was opened at the pharmacy order. A special development of the system of ZO occurred during the time of Peter I, in which the pharmacy order was renamed the medical office, established schools for training doctors, medical hospitals, issued decrees on hygiene in the army and on ships, on the prevention of infectious diseases in the army, etc.

During the Zemstvo reform, medical care began to be provided in the village, and the basic principles of Zemstvo medicine were ***precinct, phasing, traveling medical care, providing districts with paramedics***.

Health systems (the main difference between them is the source of funding):

1. ***state system*** (budget, Beveridge system);
2. ***insurance system;***
3. ***private system*** (market).

The health system is a collection of all organizations, institutions and resources whose main goal is to improve health. The functioning of the health system requires human resources, financial resources, information, equipment and materials, transport, communications, and universal governance and leadership. In the framework of the health system should provide services that are responsive to the needs and fair from a financial point of view, with respect for people.

Good health care system every day significantly improves people's lives. Thus, the health-care system benefits the mother by sending her a letter reminding her that her son needs to be vaccinated against a life-threatening disease. The same can be said of a family from a village that has finally gained access to clean water from a well that is being cared for properly through government funding for a sanitation project; or a person with HIV/AIDS who is receiving antiretroviral drugs and nutritional advice and undergoing regular check-UPS at an affordable clinic.

The ultimate responsibility for the overall functioning of the health system in the country lies with the government, but good governance in the districts, municipalities and individual health facilities is also very important.

Strengthening health systems and their functioning in a more equitable manner are recognized as key strategies for poverty reduction and development.

The challenges of health systems are not limited to poor countries. Some rich countries have large populations that do not have access to health care because of the inequitable organization of social protection, while others struggle against price increases due to inefficient use of resources.

2.3. WHO criteria for comparing national health services

In order to enhance the development of national health systems, who, in collaboration with member States, has developed basic principles for health system performance assessment (HSPA), reflecting the link between the organizational structure and performance of health systems. Key indicators have been developed to measure the level of achievement of the goals of health systems.

Level of health

As a result of more than 15 years of work, who introduced the concept of "healthy life expectancy" along with its indicator-disability-adjusted life expectancy (DALE) – a measure of the level of health achieved among a specific population. This indicator has recently been renamed healthy life expectancy (HLE). It is based on life expectancy at birth, but adjusted for time given to poor health. Life expectancy at birth is a composite mortality index. Data on deaths with the age distribution can be assembled on the basis of the registers of statistics of natural population movement, survey of the health status and selected systems of records of acts of civil status

The specific period of application, which accounts for poor health, but determined by the results of one-stage studies using The international classification of functional States, disability and health.

The distribution of levels of health

In order to assess the equitable distribution of health outcomes, who invites countries to quantify the distribution of healthy life expectancy among population groups. However, since such data for different populations are still only limited, data on child survival, which were obtained at the individual level for many countries, were used in WHR2000 to measure inequalities in child survival.

The degree of responsiveness of the system and the distribution of the elements of responsiveness

Every health-care system must set itself the task of meeting, in the spirit of justice, the legitimate needs of the population served, which are not directly related to health care. The responsiveness of the health system reflects respect for the individual and customer orientation. In WHR2000, respect for the individual is understood to mean autonomy, dignity and confidentiality, while customer orientation means quick service, quality of basic amenities, access to social support systems in the treatment process and freedom of choice for those who can be reached for help.

The responsiveness of the system should focus not on people's expectations of the health system, but on capturing their true emotional experiences in the process of interacting with the system. When working on the WHR2000, the survey results provided by the main "providers" of information were used to assess both the level and the distribution of responsiveness.

Principle of equity in financial contributions

The share of post-tax income that each household spends on health services indicates the extent to which resource generation reflects the level of solvency of the population. This share was measured as the sum of financial contributions from individual households to health protection (payment for services in cash, taxes, contributions to social security, etc.) divided by the total amount of expenses (as equivalent income) minus subsistence level (in WHR2000 expressed as the sum of the cost of meals).

2.4. Models of health systems in the world

Despite the diversity of specific forms of organization of the system of public health, the specifics of economic relations in this sphere of society, we can still identify a number of parameters that reflect the common development inherent in different countries. Among these parameters, expressing the main features of the health system, its main economic characteristics, include:

- property relations;
- methods of financing (obtaining resources);
- mechanisms of stimulation of medical workers (producers) and population (consumers);
- forms and methods of control of volume and quality of medical care.

Each country historically develops and develops its own way of attracting economic resources for the provision of medical care, preservation and promotion of public health. The quantity and quality of resources

allocated by society, the effectiveness of their use in the field of health care is determined by a complex system of economic, political, moral, ethical and other relations that have historically developed in the country.

The existence of a country's health system is determined by many factors. It all depends on what is at the heart of the classification of a health system.

So from the point of view of the socio-political structure of society conditionally distinguish ***five types of health systems***: 1) classical (disordered), 2) pluralistic, 3) insurance, 4) national, 5) socialist.

The classification of the world health systems according to which three different types of health systems are proposed by the experts of the world health organization (S. H. Hakansson, V. Majnoni, d'intignano, G. H. Mooney, J. L. Roberts, G. L. Stoddart, K. S. Johansen, H. Zollner):

1 – government or Beveridge system;

2 – system based on comprehensive health insurance or Bismarck system;

3 – non-state, market or private health care system.

Typically, most authors identify the following models:

1) universalist (Beveridge model),

2) social insurance (Bismarck model),

3) "southern model "(Spain, Portugal, Greece and partly Italy),

4) institutional or social democratic "Scandinavian model",

5) liberal (residual social security),

6) conservative corporate (Japan),

7) Latin American,

8) of the health care system of industrialized countries of East Asia,

9) health systems in countries with economies in transition.

Economic models of health systems in different countries can be identified depending on the role and functions of the state in these processes.

Currently, all existing health systems are reduced to three main economic models. These models do not have unambiguous common names, but the description of their main parameters is given by experts, in General, the same. These are: paid medicine based on market principles using private health insurance, public medicine with a budget financing system and a health care system based on the principles of social insurance and market regulation with a multi-channel financing system.

The first model is characterized by the provision of medical care mainly on a paid basis, at the expense of the consumer of medical services, the lack of a unified system of public health insurance. The main instrument for meeting the need for medical services is the market for medical services. That part of the needs that are not satisfied by the market (the poor, pensioners, the unemployed) is taken over by the state through the development and financing of public health care programs. It is most clearly represented by the us health care, where the basis of the organization of health care is the private market of medical services, supplemented by state programs of medical care for the poor "Medicade" and pensioners "Medicare". This model is usually called a paid, market, American, sometimes - private insurance system.

The second model is characterized by a significant (exclusive) role of the state. Financing of health care is carried out mainly from the state budget, at the expense of taxes from enterprises and the population. The population of the country receives medical care free of charge (except for a small set of medical services). Thus, the state is the main buyer and supplier of medical care, ensuring the satisfaction of most of the public need for health services. The market here has a secondary role, as a rule, under the control of the state. This model is from 1948. exists in the UK. It is also characteristic of Ireland (1971), Denmark (1973), Portugal (1979), Italy (1980), Greece (1983) and Spain (1986). It is called state, budget, state budget.

The third model is defined as a social insurance or regulated health insurance system. This model of health care is based on the principles of a mixed economy, combining the market of medical services with a developed system of state regulation and social guarantees, access to medical care for all segments of the population. It is characterized primarily by the presence of compulsory health insurance for all or almost all the population of the country with some participation of the state in the financing of insurance funds. The state here plays the role of a guarantor in meeting the socially necessary needs of all or the majority of citizens in medical care, regardless of income level, without violating the market principles of payment for medical services. The role of the market of medical services is to meet the needs of the population beyond the guaranteed level, providing freedom of choice and sovereignty of consumers. Multi-channel financing system (from the profits of insurance companies, deductions from wages, the state budget) creates the necessary flexibility and stability of the financial base of social insurance medicine.

This model is most clearly represented by health care in Germany, France, the Netherlands, Austria, Belgium, Holland, Switzerland, Canada and Japan.

The social insurance model includes features of both state and market models. Depending on which parameters prevail, the social insurance model may be closer to either the state or the market. For example, social insurance models of health care systems in Scandinavia and Canada have much in common with the state model, and the health care system in France is close to the market.

However, the basis for the allocation of these models is not only the role of the state, but also the understanding and definition of "goods" in the field of health. It should be noted that there is still no clear opinion on what is a commodity in this sphere of life, although since ancient times, Egyptian priests and doctors of Chinese emperors have tried to answer this question.

For example, in Egypt, the doctor's fee was determined in a very specific way: the patient paid the weight of his hair with silver after the illness. If the disease was long, the hair grew longer. Thus, the doctor was economically interested in long-term treatment.

In Ancient China, on the contrary, doctors serving the elite, received salaries as long as patients were healthy, that is actually paid for the actual state of health. In this case, the doctor was economically interested in the patient's health.

Although the main goal of health care is human health, the attempt to consider it as a product is very problematic. And above all, because it is poorly measurable and difficult to assess in money. But most importantly, if such an assessment of human health in monetary terms was found, it would determine the price of human life. In fact, this price is implicitly present, for example, in calculations related to the safety of life, in military medicine (in determining priorities in the provision of medical care). However, the explicit determination of the price of human health, and therefore of human life, is contrary to tradition, culture and, given its apparent lack of validity, is seriously and fairly criticized. In this regard, it is proposed to consider medical services as a product, and to define the health system as an organized activity in the course of which the production of these services is carried out.

The previously described models of health care organization take into account the specifics of the medical service as a commodity in different ways. And this factor is no less important than the role of the state, to highlight the different types of organization of the health system.

For example, in the market model, health services are considered as any other commodity that can be bought or sold in accordance with the classical laws of the market (i.e. with minimal consideration of its social specificity). As already mentioned, a typical example of a market model is the us medical services market. Health care is represented here by a developed system of private medical institutions and commercial health

insurance, where doctors are sellers of medical services, and patients are their buyers. Such a market is closest to the free market and has all its advantages and disadvantages.

Due to the intense competition conditions of quality growth, search for new products and technologies, tough culling of economically inefficient strategies and market participants are created. This determines the positive aspects of the market model of health care.

However, on the other hand, insufficient consideration of the specifics of the product in question (unlimited demand for it, the monopoly of the seller, etc.) causes certain negative aspects:

- excessive increase in medical costs;
- inability to exercise state control and, consequently, difficulties in setting priorities between health and other sectors of the economy;
- the possibility of overproduction crises and the stimulation of the supply of unjustified services;
- prerequisites for unfair competition;
- undue influence of fashion and advertising;
- unequal access to health care.

The commercial availability of the insured, concerned in preserving their income, may reduce the volume of services (through expert assessment), the cost of medical services (through auction) and, therefore, payment of the medical aid. Reduction of total costs expands the range of potential patients in the medical services market, increasing the volume of demand.

In the conditions of market organization of the health care system, the patient constantly has to solve the dilemma: on what market — financial or insurance - to invest their savings. The choice is made between a profitable investment of funds and the risk of getting sick, and not being able to pay for medical care. The pattern here is usually this: the greater the risk of getting sick and the greater the fear of financial expenses for medicine, the stronger the protection should be, and its value (compared to possible income) is higher.

The market model of organization of the health care system is one of the most qualitative, but at the same time, one of the most expensive models. For example, the purely economic contribution of health as one of the most important parameters of labor to the U.S. economy is estimated at 10% of gross domestic product, i.e. hundreds of billions of dollars, but the cost of health care is even higher and is 14% of gross domestic product.

Thus, from an economic point of view, this model is inefficient and requires over-expenditure of funds. In addition, the health care system, organized on the basis of market principles, does not provide social

guarantees of the population in obtaining medical services. The market model does not have the property of accessibility for all layers of its citizens. There is also extreme inequality in the consumption of health services, which is closely correlated with income differentiation. Thus, in 1990, 70% of all medical services received accounted for 10% of the population.

If social specificity is considered as the main parameter of medical services, the fact of purchase or sale of medical care will mean indirect purchase of national health. In this case, the principle of equal access to medical services will be put at the forefront in the organization of the health care system. This is most easily achieved in a centralized way, by subordinating the health system to the control of the state. Thus, it is social priorities that prevail in the health budget system. A typical example of a government model is the UK health care market. This market is based on the public (national) health system. The national health care system was named Beveridge after Lord Beveridge, who proclaimed in 1942 the ideas that became the basis of the budget model: the rich pay for the poor, the healthy - for the sick. With this approach, society is trying to pay for the health of the nation through the payment of medical services aimed at its maintenance. In this market, it is much easier to correlate the priorities of the nation's health with other priorities of the national economy. This model of organization of the health care system tends to the market of centralized, planning and distribution economies and has corresponding to such economies characteristic positive and negative features.

The disadvantages of this model include the absence of natural stimulatory factors. This leads to a slow increase in the quality of care, insufficient flexibility of organizational structures, the possibility of long-term implementation of ineffective strategies and the use of old medical technologies. But there are obvious advantages. First of all-focus on disease prevention. Since, in the end, health is paid for, the doctor is objectively interested in reducing the incidence, reducing the volume of medical services, while in the free market he is objectively interested in the opposite.

Often, equal access to medical care is achieved by severely limiting the patient's freedom of choice of a medical institution or a doctor. At the present stage, many countries using the state model are trying to eliminate such an obvious lack of organization of the health care system. However, this process has just begun. For example, in Sweden, only in 1991, after the pilot testing, it was decided to grant each Swede the right to freely choose a medical institution or a doctor throughout the country. A similar decision was made in Denmark, but in Finland the patient can choose any General practitioner or specialist only in a certain medical center or hospital.

Let us now turn to the social insurance model of the organization of the health care system and consider what in this case is meant by the product.

Historically, the first system of public health insurance was introduced in Germany during the reign of Chancellor Otto Bismarck (1883-1889 biennium), so called Bismarck. It was a series of special laws on workers ' health, accident, disability and old age insurance. The basis of these legislative acts was the following principle: health-capital, which increases the efficiency of social work. Therefore, the main characteristic of health services in this model is considered a random potential demand associated with the risk of loss of health and disability. At the same time, labor is understood as one of the most important production factors ("screw" of social production), the probability of "breakage" of which should be minimized. And the main role of health insurance is in this.

Thus, in the Bismarck model, health plays the same role in relation to labor as capital. Health increases labor efficiency, the cost of so-called "human capital." A similar principle was used in Russia in the early 20s, when the factory medicine was created. Its main task was to improve the quality of human resources in key industries: heavy and defense. Thus, the Bismarck model is focused primarily on solving purely economic problems: ensuring productivity growth and reducing economic losses by reducing labor losses.

However, in addition to insurance against the risk of loss of health itself, the system of public medical insurance provided redistribution of income through the payment of medical services through insurance funds. This has made it possible to mitigate the social problems associated with the risk of disability of the poor.

Modern medical insurance in Germany generally retained the basic principles of the Bismarck organization of the health care system. Financing is carried out by consolidation of funds from various sources: 60% of funds coming to the health care facilities are means of compulsory medical insurance (CHI), 25% of them are insurance of family members of workers; 10% are means of voluntary medical insurance (VMI), 15% are public funds at the expense of taxation, 15% are personal funds of citizens.

In turn, CHI funds are formed from three sources: the state budget, contributions of employees and employers. The average contribution to health insurance in the 1990s was 13 per cent in relation to the wage Fund. Contributions are paid by employers and employees in equal shares, i.e. 6.5 per cent.

In Germany, there is a fairly elaborate system of prices for medical services. The unit for financial calculations is the "point". The number of points reflects the complexity of the service. The amount of points for each

service is stable and known to all participants of medical care and insurance. The list of the cost of medical services in glasses is published in special reference books. The price of a "point" in German marks is reviewed in accordance with changes in the level of prices or changes in the methods of medical care in the country annually, sometimes even more often. This system allows you to quickly, without a lot of work to change prices, responding to specific economic conditions, such as inflation.

Canada is one of the countries using the social insurance model. As noted earlier, despite the fact that the organization of the health care system of Canada refers to social insurance, it resembles the state model. This is primarily due to the social orientation of the canadian health care system. Characteristics of medical services. The attention of experts in the field of health to the system intensified after Canada achieved considerable success in containing medical costs. In 1965. in this country, the share of health expenditure in GDP was 6.5%, that is, it was equal to the United States, and in the 90s this figure is about 8.7%, while in the United States it is close to 12%.

Canada has a national health insurance system. This system of state social insurance guarantees health insurance to almost all citizens of the country. Moreover, the amount of medical care received does not depend on the amount of the insurance premium, a person can not be denied insurance because of old age or poor health.

Money to health care providers in Canada comes from one source - the national insurance system, which accumulates funds from three funds:

- federal and provincial budget funds;
- private insurance funds;
- voluntary donation.

The scope of activities of private insurance companies is limited, they are allowed to insure only those services that are not included in the plans of compulsory health insurance, for example, private hospital wards, cosmetic surgery services.

Most provinces accumulate their health funds from General provincial taxes, but in a number of provinces (Alberta, British Columbia) residents pay a special insurance premium, and in Quebec, employers and employees pay a special payroll tax for health insurance purposes.

Funding from local taxes is preferred, as it is believed that the collection of special insurance contributions entails an increase in administrative costs. Health expenditure is typically 1/3 of the total annual expenditure of the provinces.

The accumulated funds are used to Finance compulsory insurance plans and to develop the health care system of the province. In order for the province to have access to Federal funds, plans must meet the following conditions:

- universal coverage of the population (98-99%);
- universality (insurance should cover all necessary medical services);
- public management of the program on a commercial basis;
- availability of benefits in case a person travels.

There are two health insurance plans in Canada. The first covers stationary services, the second-services of doctors.

Most hospitals and doctors in Canada are private, and doctors are paid on a fee - for-service basis. However, tariffs for medical services are regulated by the government and reviewed annually. The state is not interested in increasing tariffs for medical services, as the increase in the cost of treatment would require an increase in the amount of public funding, and, consequently, an increase in taxes, which is an unpopular measure. In Canada, financial penalties are imposed on provinces loyal to doctors who charge their patients additional fees in excess of the established rates.

Strict control over medical expenses constrains the pace of introduction of the latest medical technology. In Canada, the advantages and disadvantages of new medical equipment are carefully and comprehensively weighed in order to make a final decision on the appropriateness and consequences of its use in terms of efficiency of use and burden on the country's budget.

However, a significant share of the budget in total health spending, the establishment of a single financier in the face of the National insurance system has allowed the canadian government to ensure clear coordination of health programs and reduce administrative costs (currently they are 1-2% of total health spending).

If the Canadian social insurance model is close to the state, the French social insurance has a number of parameters characteristic of the market model. Despite the fact that France is characterized by a high coverage of the population by CHI programs (already in 1988 the CHI programs were extended to 80% of the French), compulsory insurance reimburses the insured only 75% of the cost of medical care. Additional voluntary medical insurance (VMI) is required to receive 100% reimbursement. In case of illness, temporary or long-term disability, 70-90% of the cost of medicines is also reimbursed by the CHI.

Financing of medical institutions is carried out from three sources: the state budget, compulsory health insurance, personal funds of citizens. The

state social insurance organization of France "Securite social" signs an agreement (Convention) with doctors, which clearly indicates the price of medical services. This is how prices for medical services are regulated. Prices are revised 2 times a year, which usually leads to the revision and increase of insurance premiums. As already mentioned, "Securite social" reimburses the patient only 75% of the costs. The remaining 25% is personal expenses, but they can also be reimbursed if the patient uses additional voluntary insurance (VMI) provided by private insurance companies. The latter in France quite a lot and the number of insurance companies France ranks third after Germany and Holland. 90 insurance companies are part of the Federation of insurance companies in France. They offer the population a wide range of health insurance services in addition to CHI. Unlike Germany, the patient directly pays for medical services, and the CHI system partially reimburses its costs, making medical care in a market economy more accessible to the population.

Among the variety of specific forms of organization of the health care system in different countries, using the social insurance model, I would like to focus on the health care system in Japan.

Health care in Japan is of great interest due to the fact that the country managed to achieve the highest rates of health of the population in a relatively short time, although, not least, this is due to the conditions and lifestyle.

Japan is the first country in Asia where in 1961 it was introduced health insurance nationally, although a number of laws on insurance, partially compensate for the costs of medical care, was accepted much earlier: in 1922 - on compulsory insurance of employees, in 1938 - on the national health insurance, in 1939, - about insurance of seafarers, in 1953 on insurance for day laborers.

At present, Japan has developed a public health system, including public hygiene, social security, health insurance, medical care for some groups of the population at the expense of the state.

Overall, health expenditure in Japan is only about 6.6 per cent of gross national product. Each medical institution is an independent organization. 80% of hospitals are owned by private practitioners. Currently, health care in Japan is financed mainly by health insurance funds. The vast majority of the Japanese population is covered by two main health insurance systems: the national health insurance system, which is based on the territorial principle, and the employment insurance system, which is based on the production principle.

The national health insurance system mainly covers small-scale owners and their families, the disabled and other non-working persons (about 45 million in total). They are charged by the local government or the national

health insurance Association. This fee depends on the place of residence, income, real estate, family size. 40% of the amount of temporary disability benefits are state grants. Benefits are provided in the form of cash payments and preferential medical care. The maximum amount of benefits can be up to 90% of the cost of treatment (10% paid by the patients themselves). Benefits for dependants do not exceed 70% of the cost of medical care. Both the insured and their dependents are paid by the insurance authorities for their stay in the hospital for 70%, the rest of the amount is paid by the patient in cash upon receipt of medical services. If the cost of treatment is very high, the patient will be reimbursed beyond the established maximum. Fully by the patient paid for the medication, the post of private nurse stay in a private room. Payment for medical care is made on the accounts of medical institutions, provided monthly through social insurance. Previously, these accounts are checked by medical consultants to determine the rationality of the services provided. The calculation is made according to the tariffs for medical services and medicines approved by the Ministry of health and social security.

The system of insurance of employees, covering employees and their dependants, is the largest in Japan (already in 1985 it covered more than 61 million. man). In this system, there are various programs. The state health insurance program applies to employees of medium and small enterprises (the insurer is the state itself). In the public health program, an insurer is an insurance company created by the administration and employees of one enterprise or several enterprises of the same industry.

The programmes of health insurance for seafarers, day labourers, certain categories of workers and employees, the programmes of mutual assistance associations of employees of state institutions, employees of local self-government bodies, public corporations, teachers and employees of private educational institutions are close to the system of insurance for employees.

In the system of insurance of employees, funds are formed from contributions of insured persons, contributions of the state and enterprises. The amount of the contribution depends on the earnings, but can not exceed the limit. The largest contribution - 8.4% of earnings-is set for the state health insurance program, with half of the contribution is made by the insured, half-by the state. Similarly, in the amount of 8.2% of earnings, a fee is charged for insurance of seafarers. Workers ' contributions are charged at a fixed rate (not as a percentage of earnings).

The insurance Fund of the public insurance program is formed from contributions of the insured, constituting 3.45% of earnings, and contributions of entrepreneurs, constituting 4.62% of earnings. Under this

programme, the state covers 16.4 per cent of the costs of the temporary disability benefit, which is paid from 4 days onwards at 60 per cent of the salary. There are also benefits for the birth of a child, for the care of the sick, in connection with the funeral.

In the national health insurance system, there is an insurance scheme for persons who have retired after reaching retirement age and their family members and an insurance scheme for the elderly. Under the welfare act, older persons over 60 years of age are entitled to an annual examination. Free of charge is advice on the health of the elderly, nursing care for the elderly at home, medical care for people over 70 years.

In addition to the health insurance system in Japan, there are public funds, at the expense of which on the basis of laws is carried out: prevention of tuberculosis, mental and infectious diseases, sexually transmitted diseases, leprosy, hereditary diseases, compensation for damage caused to health by environmental pollution.

All of the above is combined with the concept of "public hygiene". Also from public funds. Activities are financed under the umbrella of "social security and social welfare". These activities are carried out on the basis of laws: on protection of life rights (medical care), on social security for cripples and disabled persons (rehabilitation care), on social security for children, on emergency measures for the wounded in the war, on medical care for the victims of the atomic bombing. In addition, mother and child insurance is provided at the expense of public funds.

Thus, at the heart of each of the considered models of health system organization is a different understanding of what is a commodity in the field of health. The attitude to health care as a private, public or quasi-public good determines the role of the state in the system of health care, and the formation of prices in the market of medical services, and wages of people employed in this field.

2.5. World Health Organization

The world health organization (WHO) is a specialized Agency of the United Nations that directs and coordinates health within the United Nations system. Is based 7 April 1948.

The WHO governing bodies:

- The ***World Health Assembly*** is the highest decision-making body of WHO. The main function of the Assembly is to define the overall policy direction of WHO. The Assembly appoints the Director General,

controls the financial policy of the Organization, reviews and approves the programme budget. Session of the Assembly shall be held annually (may, Geneva) in their work of participating delegations from all 194 member States of the who;

- The ***Executive Committee*** consists of 34 members elected for a term of three years. The main functions of the Executive Board are to implement the decisions and policies of the health Assembly, provide advice and overall support to its work. The Committee meets twice a year, in January and may.
- ***WHO headquarters*** is located in Geneva, Switzerland. WHO has 147 country offices and 6 regional offices.

May 23, 2017 at the 70th session of the world health Assembly elections were held by who Director-General, in which the victory was won by the representative of Ethiopia Tedros Adhanom Ghebreyesus.

WHO regional Director for Europe – Zsuzsanna Jakab.

The world health organization plays a critical role in the United Nations System as the governing and coordinating body for international health. Broad powers of this organization include providing leadership in solving increasingly complex global health issues, the establishment of guidelines, norms and standards in the field of health, monitoring and evaluation of trends in health care and the formulation of research programmes in the health sector. WHO also provides technical support and assistance to countries in addressing public health emergencies.

WHO is committed to developing innovative and creative partnerships that pave the way for work towards common health goals, and – like all UN member States, of which more than 190 countries-collaborates with a vast number of organizations, including other United Nations agencies, non – governmental organizations, donors and civil society.

The organization leads the global health sector in its response to the HIV epidemic. As a co-sponsor of UNAIDS, who is leading the treatment and care of HIV and co-infection with HIV/tuberculosis and is coordinating efforts to eliminate mother-to-child transmission of HIV with the United Nations Children's Fund (UNICEF).

CHAPTER 3
MODERN PROBLEMS OF PREVENTION. FUNDAMENTALS OF MEDICAL PREVENTION

3.1. Preventive health care

Health of the population is caused by the complex influence of the factors determining a way of life of the person and a condition of the environment of its dwelling — atmospheric air, water, the soil, level of welfare of society, etc.

Some factors have a positive impact on the health of the population, while others have a negative impact. Factors that are potentially dangerous to human health and contribute to the emergence of diseases are called risk factors.

Risk factors are potentially hazardous to health factors that increase the likelihood of diseases, their development and adverse outcome. The concept of "risk factor" is applied to any phenomenon, the impact of which increases the likelihood of diseases. Along with the direct causes of diseases, risk factors, acting indirectly, violate the mechanisms of psychophysiological adaptation and thus create conditions for the emergence and development of diseases.

Identification of risk factors and prevention of chronic diseases contribute to the preservation of health and improve the quality of life of the population. With this in mind, the most important task of public authorities is to develop a set of measures aimed not only at the prevention of diseases, but, above all, at the correction and elimination of risk factors for their occurrence.

The most common among adults and amenable to correction risk factors are:

- low physical activity;
- unbalanced nutrition (excessive consumption of table salt, saturated fats, lack of proteins, trace elements, vitamins, etc.);
- bad habits (smoking, alcohol abuse, drug use, etc.);
- psychological disadaptation (high psycho-emotional load, fatigue at work, fear, hostility, social insecurity, etc.).

The division of factors into these groups is very conditional, since a person is usually subjected to a complex impact of interrelated and mutually determining factors. In this regard, when studying the health of the

population, comprehensive statistical studies are carried out, which take into account the influence of many factors, the relationship and the rank assessment of each of them.

In some cases, exposure to risk factors immediately leads to the development of the disease. In this case, it can be assumed that this impact was a risk factor for the disease. Other diseases have a long latent period between the action of the factor and the clinical manifestation of the disease. Establishing a link between them in this case becomes problematic.

Elimination or mitigation of the negative impact of risk factors on the health of the population is the basis of primary prevention and the formation of a healthy lifestyle.

Prevention – a term that means a set of different kinds of activities aimed at the prevention of any phenomenon and/or the elimination of risk factors.

Specifically, the subject content of the concept of prevention has many meanings used to refer to different policies, social, collective and individual activities and several types of medical activities. Nevertheless, the concrete objective content of this concept is always an action – an opportunity to promote or hinder the implementation of a particular trend of public health.

Thus, the General content of the concept of "prevention" can be reduced to activities through which it is possible to achieve the preservation and improvement of individual, group or public health. We can say that this is a set of measures aimed at preventing people from developing diseases, their exacerbations, socio-psychological and personal maladjustment.

Prevention of diseases – a system of medical and non-medical measures aimed at preventing, reducing the risk of health disorders and diseases, preventing or slowing their progression, reducing their adverse effects.

3.2. Medical prevention

Medical prevention is a system of preventive measures implemented through the health care system.

Prevention is a system of public, social, hygienic and medical measures aimed at ensuring a high level of health and disease prevention.

Preventive measures will only be effective if they are carried out at ALL levels: state, labor collective, family, individual.

The state level of prevention is provided by measures to improve the material and cultural standard of living of the population, legislative measures regulating the protection of public health, the participation of all ministries and departments, public organizations in the creation of optimal health living conditions through the full use of scientific and technological progress.

Preventive measures at the level of the workforce include measures to ensure sanitary and hygienic control of working conditions, hygiene of housing, trade and public catering, to create a rational mode of work, rest, a favorable psychological climate and relationships in the team, sanitary and hygienic education.

Prevention in the family is inextricably linked with individual prevention and is a determining condition for the formation of a healthy lifestyle, it is designed to provide a high hygienic level of housing, good nutrition, recreation, physical culture and sports, creating conditions that exclude the emergence of bad habits.

Medical prevention in relation to the population is defined as:

- ***individual*** – preventive measures carried out with individual individuals. Individual medical prevention – personal hygiene-scientific and practical medical activities for the study, development and implementation in everyday individual life of hygienic knowledge, requirements and principles of preservation and promotion of health. This concept is also used to determine the compliance of human life with medical and hygienic standards and medical recommendations-conscious active hygienic behavior;
- ***group*** – preventive measures carried out with groups of people with similar symptoms and risk factors (target groups);
- ***population (mass)*** – preventive measures covering large groups of the population (population) or the whole population. The population level of prevention is generally not limited to medical interventions – local prevention programmes or mass campaigns aimed at health promotion and disease prevention.

However, the medical and environmental system emphasizes the conventionality of the division of prevention into socio-economic and medical activities and social and individual. All its many components are linked by social relations and are revealed in the public health policy.

Public medical prevention, preventive (safety, social, public) medicine – scientific and practical medical activities to study the prevalence of diseases in society, disability, causes of death in order to justify the socio-economic, legal, administrative, hygienic and other areas and measures of prevention, therapeutic measures.

3.3. Types of prevention

A set of preventive measures implemented through the health care system is called medical prevention. Medical prevention in relation to the population is individual, group and population (mass). *Individual* prevention is carrying out preventive measures with individuals; *group* – with groups of people with similar risk factors; *population* – covers large groups of the population (population) or the population as a whole.

In addition, for health reasons distinguish primary, secondary and tertiary prevention (rehabilitation).

1. Primary prevention – a system of measures of an offensive nature, aimed at eliminating the conditions and causes of the disease. Its objectives: activation of the body's defenses, prevention of negative effects of risk factors on human health.

Primary prevention – a set of medical and non-medical measures aimed at preventing the occurrence of certain diseases and abnormalities in the state of health.

Primary prevention includes a set of measures that include:

- reducing the impact of harmful environmental factors on the human body (improving the quality of air, drinking water, soil, structure and quality of food, working conditions, life and rest, the level of psychosocial stress and other factors affecting the quality of life);
- the formation of a healthy lifestyle;
- prevention of occupational diseases and injuries, accidents and deaths at working age;
- immune prevention in different population groups.

2. Secondary prevention – a set of medical measures of a defensive nature, aimed at early detection of diseases, prevention of relapses, progression of the pathological process.

Secondary prevention includes:

- targeted sanitary and hygienic training of patients and their families in knowledge and skills related to a specific disease (organization of health schools for patients suffering from bronchial asthma, diabetes, hypertension, etc.).);
- medical examinations to detect diseases in the early stages of development;

- conducting courses of preventive (anti-relapse) treatment.

3. Tertiary prevention is an element of secondary, rehabilitation of patients, disabled people who have lost the opportunity of full life.

Tertiary prevention, or rehabilitation, is a complex of medical, psychological, pedagogical, social measures aimed at restoring (or compensating) the disturbed physiological, social functions of the body, the quality of life and working capacity of patients and disabled people. This is achieved by the development of a network of rehabilitation and rehabilitation centers, as well as health resorts.

Principle of prevention:

1) continuity of preventive measures (throughout life, starting in the antenatal period);

2) differentiated nature of preventive measures;

3) mass prevention;

4) science of prevention;

5) the complexity of preventive measures (participation in the prevention of medical institutions, authorities, public organizations, the population).

Levels of prevention:

a) state – legislative measures aimed at improving the financial situation of people and their cultural level;

b) public (labor collective) – creation of optimal microclimate in collective, adequate working conditions;

c) family;

d) individual – everyone is responsible for their health.

Areas of prevention:

1) behavioral;

2) sanitary and hygienic;

3) functional-biological;

4) therapeutic.

Modern problems of prevention:

1) Must be directed not only to health, but mainly for health promotion, to health care healthy people. Health formula-health depends on:

a) lifestyle (50%);

b) environmental conditions (20%);

c) genetic factors (20%);

d) therapeutic measures, medicine (10%).

2) active participation of the population in prevention

3) strengthening the public focus of prevention

The reasons that require increased prevention at the present stage:

1) changing the type of pathology: from epidemic (infection) to non-epidemic;

2) adverse course of viral pathology;

3) unfavorable trends in the dynamics of demographic processes;

4) physical and neuropsychiatric health of the population (especially children) deteriorates);

5) increasing the aggressiveness of the environment.

3.4. Hygiene education and training

Hygienic education (health education) – a set of educational, educational, propaganda and promotional activities aimed at the formation of a healthy lifestyle, disease prevention, preservation and promotion of health, improving the working capacity of people, the extension of their active life.

The basis of hygienic training and education is the concept of formation of a healthy lifestyle, the main tasks are formulated:

- the decline in Smoking prevalence;
- improvement in the quality of food;
- increased physical activity;
- mitigating the impact of damaging psychosocial factors and improving the quality of life;
- public and personal hygiene measures;
- reduced alcohol consumption;
- prevention of drug use;

- promotion of medical and hygienic knowledge among the population helps to reduce morbidity and mortality, helps to educate a healthy, physically strong generation.

Preventive measures are primary and secondary.

Primary – when preventive measures are aimed at the immediate cause of the disease or damage in healthy people. When carrying out primary prevention, the concept of lifestyle becomes of paramount importance, which determines the ways of preventing chronic non-infectious diseases (cardiovascular, endocrine, neuropsychiatric, etc.), the Genesis of which is largely associated with Smoking, alcohol abuse, hypodynamia, irrational nutrition, psycho-emotional stress.

Secondary preventive measures are carried out in cases of exposure to conditions and factors that contribute to the development of the patient's disease or damage. Secondary prevention is basically targeted health education, including individual or group counselling, training of patients and their family members in knowledge and skills related to a particular disease or group of diseases. Secondary prevention includes courses of preventive treatment and targeted recovery (exercise therapy, massage, sanatorium treatment, etc.).

Both primary and secondary prevention measures are aimed at forming the correct perception and attitude to the changed opportunities and needs of the body.

Types of medical preventive services:

- preventive counselling for individual patients;
- preventive group counseling;
- preventive medical examination;
- vaccinal;
- prophylactic medical examination;
- preventive health services (physiotherapy, massage, gymnastics, classes in various types of physical culture, sanatorium recovery, etc.).

Methods and means of hygienic training and education of the population and promotion of healthy lifestyles:

Means	***Methods***
Oral	Lecture, conversation, advice, discussion, hour of questions and answers, health lessons, etc.
Printed	Pamphlets, brochures, leaflets, articles, questions and answers

Visual	TV, movies, DVDs, slides, sanitary bulletins
Mixed	All means together

Hygienic training and education, promotion of a healthy lifestyle is carried out at the population level using various forms and methods of training, does not require significant physical costs.

Each of the methods can be implemented using certain forms and means. There are individual, group and mass forms of hygienic education.

Forms of individual exposure allow to take into account the characteristics of the recipient. They are used, for example, in the process of communication of the health worker with the patient (conversation, instruction, consultation — full-time or by phone, personal correspondence).

Forms of group influence are used for differentiated hygienic education of different age-sexual and professional groups of the population, as well as for practical training.

The lecture is given by the doctors of the healthcare institution or paramedics at the facilities (outside the healthcare institution). The composition of the audience should be from 10 to 25 people. The main focus of the presentation is on the measures of prevention of specific pathology. The lecture material excludes medical terms and recommendations for the use of specific drugs. The lecture is a mass means of hygienic training and education, characterized by the largest capacity of the information processed by the lecturer. In a short period of time, the lecturer should present a new large material. Usually, a large audience is expected to give a lecture.

Interviews are conducted by all health professionals (doctors, paramedics, midwives, nurses). The composition of the audience from 1 person (individual) to 5-7 people (group). Topics of conversation can be very diverse. The conversation involves the active participation of listeners. The conversation involves the active participation of listeners. The task of the presenter is to make it interesting by leading questions, to involve listeners in the General conversation.

The question and answer board is a form of correspondence consultations.

A memo is given to the patient to remind him of the tips for strengthening and maintaining health.

The round table, hours of questions and answers is a group form of work of hygienic education based on discussion of the specific questions connected with strengthening and protection of health of attendees, exchange

of opinions. The event is attended not only by medical workers, but also public organizations (drug addiction, pension Fund, etc.).

Sanitary wall print (posters, sanitary bulletin) is a massive tool for health education, which is clearly, colourfully and contains specific information. Artistically designed sanitary bulletin always attracts attention and is one of the most easy to understand means of propaganda.

Sanitary bulletin is illustrated health education newspaper, devoted to only one topic. The theme should be relevant, taking into account the challenges facing modern health care, as well as the epidemiological situation. Large font stands out for a title. Its name should be interesting, intriguing, it is desirable not to mention the word "disease" and "prevention". Sanitary bulletin consists of 2 parts — a text and a picture. The text is placed on a standard sheet of paper in the form of columns 13-15 cm wide, printed on a typewriter or computer. It is allowed to write the text in black or purple calligraphy. It is necessary to allocate an advanced article or introduction, the rest of the text should be divided into subsections (headings) with subheadings, which set out the essence of the issues and practical advice. Noteworthy presentation of the material in the form of questions and answers.

The text should be written intelligible to the masses language without medical terminology, with the mandatory use of local material, examples of proper hygienic behavior in relation to their health, cases of medical practice. Decoration: drawings, photos, applications should be elegant, illustrate the material, but not duplicate it. Drawing can be one or several, but one of them — the main one — should bear the main meaning and attract attention. Text and artwork should not be cumbersome. The health bulletin ends with a slogan or call. It looks better when framed. The emblem of the Red Cross and the bowl with a snake are not drawn. The name "Sanitary bulletin" and the issue number should not be present, as the sanitary Bulletin is not a periodical. In the lower right corner indicates the responsible and release date. It is necessary to ensure the issuance of sanitary bulletin at least 1-2 times a quarter.

Sanitary themed album – illustrated publication that focuses on a specific health topic and having a well-defined destination.

Slideshow, movies, DVDs on health – mass form of work hygiene for optimal health lifestyles and disease prevention. It is advisable to combine this with a presentation on relevant aspects of health promotion and preservation.

Mass health company – held to medical dates in order to draw attention to a specific problem. It involves the participation of a large number of people with the involvement of specialists of General and narrow profile.

Health corner. The organization of the corner should be preceded by a certain preparatory work:

* coordination of the organization of the corner with the management of this institution;

* definition of the list of works and necessary construction materials (stands, planks, fastening "rails", buttons, glue, fabric, etc.) •);

* choice of location-preferably one where a lot of people are constantly or often;

* selection of appropriate pictorial material: posters, exhibits, slides, pictures, pamphlets, leaflets, clippings from Newspapers and magazines, drawings. This selection is carried out with the help of an instructor on hygienic education of the district.

Modern forms of work on hygienic training and education of the population include a set of teaching methods, which helps to increase the degree of assimilation of information (for example, *discussion in groups (50%) + the use of visual AIDS (30%) = 80% of assimilation of the material*).

School for patients – a set of tools and methods of individual and group impact on patients and the population, aimed at improving their knowledge, awareness and practical skills for the rational treatment of the disease, prevention of complications and improve the quality of life. The purpose of such Schools is to increase motivation and improve the implementation of medical recommendations by patients, the formation of partnerships with the doctor in the treatment, rehabilitation and prevention, their mutually beneficial cooperation. When visiting these schools, patients are formed responsible for maintaining their health, rational and active attitude to health, motivation to recovery, compliance with the treatment regime.

The development of health Schools for patients allows to implement one of the fundamental principles of health care reform – to ensure the partnership of the doctor and the patient in achieving the quality and effectiveness of medical care.

3.5. Healthy lifestyle as a priority of social policy of foreign countries

One of the most important components of primary prevention is the formation of a healthy lifestyle (HLS), which includes favorable conditions

for human life, the level of culture and hygiene skills, allowing to maintain and strengthen health, maintain optimal quality of life.

An important role in the formation of a healthy lifestyle belongs to its promotion, the purpose of which is the formation of hygienic behavior of the population, based on scientifically sound sanitary and hygienic standards aimed at preserving and strengthening health, ensuring a high level of working capacity, achieving active longevity.

The most important directions of the formation of healthy lifestyle are:

- promotion of factors contributing to the preservation of health: personal hygiene, occupational health, recreation, nutrition, physical education, sexual hygiene, medical and social activity, environmental hygiene, etc.;
- promotion of measures to prevent factors that have a detrimental effect on health: excessive consumption of food with insufficient physical activity, alcohol abuse, drug use, tobacco Smoking, observance of certain ethnic rites and habits, etc.

Primary divisions of service of formation of a healthy lifestyle are departments (offices) of prevention.

They are organized as a part of territorial policlinics, polyclinic offices of the Central regional (city) hospitals, medical and sanitary parts. By decision of the health authorities, similar units may be established in other health care facilities.

Organizational and methodical management of activity of departments (offices) of medical prevention is carried out by the regional Center of medical prevention.

The Department (office) of medical prevention is headed by the doctor (paramedic) having the corresponding training in the field of medical prevention.

Main objectives of the Department (room) of medical prevention are the coordination of interaction of treatment-and-prophylactic institution and regional center of medical prevention, organizational-methodical maintenance of activity of medical workers of treatment-and-prophylactic institutions on the identification of risk factors, correction of lifestyle, promotion of health and hygiene knowledge, healthy lifestyle. In addition, in modern conditions, the tasks of information support of specialists and the population on health issues, including through the media, the study and evaluation of knowledge of disease prevention, the formation of a healthy lifestyle in the population through sociological surveys, come to the fore. All this is impossible without the introduction of evidence-based measures for primary and secondary prevention of diseases, hygienic training and education of the population.

The problems of strengthening the health of the population by significantly reducing the prevalence of socially significant diseases, creating conditions and creating motivation for a healthy lifestyle in recent years have attracted increasing attention at the state level.

The Jakarta Declaration "For the promotion of a healthy lifestyle in the 21st century" (1997) became a fundamental document for many years in the analyzed direction. It summarizes 20 years of experience in the implementation of the Global strategy "Health for all", evaluated the effectiveness of the formation of a healthy lifestyle as a means of improving public health, identified new directions and strategies of this process.

Today's analysis of foreign experience of health care showed that the most common form is the work with students of educational institutions. Such work is regulated by state programmes, which have the ultimate goal of preserving and strengthening the citizens of their country. When developing school programs, specialists are primarily focused on the preservation of the somatic health of students and their emotional stability. In many foreign countries, there are programs aimed at preserving the health of schoolchildren to a greater extent than is traditionally the case. These are the so-called "health promotion schools", which differ from the usual in that they pay much attention to the development of skills and abilities in the field of health and healthy lifestyles (UK, USA, Germany, France, China, etc.).

The most common program in the world today (implemented in 30 countries) is the program "Life skills" (author of the concept B. Spranger), which includes "Life skills", "learning a healthy image", "Skills of healthy relationships", etc.

"The only beauty I know is health" (Heinrich Heine). In the homeland of the poet realized it long ago: the German medicine is one of the best in the world, at the state level "the national project directed on strengthening of a healthy lifestyle of all inhabitants of Germany (W. Schmidt, H. Seehofer) is realized. According to the objectives of this project, by 2020 the Germans must learn to eat right, lead an active lifestyle and move more. Among the objectives of the project is to overcome excess weight, which affects a significant number of people in Germany: about a third of the health care system budget goes to the cost of treatment of diseases caused by malnutrition.

According to the" national project", the school curriculum includes lessons of proper nutrition, 3 times a week physical education lessons. Teach not only children but also adults. The programme approved by the government of Germany provides for measures aimed at the obligation of the food industry to indicate the composition and caloric content of the product in the labelling of its products. Healthy food is organized in factory, hospital

and school canteens, in kindergartens. The government program provides for the construction of modern children's and sports grounds, the laying of safe Bicycle paths, the creation of a ubiquitous active infrastructure. A separate direction of the program – motivation for a healthy lifestyle.

France has another interesting and productive European experience. Great attention is paid to the prevention of diseases, in particular related to the lifestyle of modern man: lack of exercise, poor diet, stress etc. it is believed that the strategy of health protection can be achieved by ensuring a more healthy lifestyle; creation of the methodology of the installation on health as the highest value; reduce the harm caused by alcohol, Smoking, addictive means; definition and use of psychophysiological, intellectual abilities of the person of the chosen profession, requirements which impose conditions and character of work; introduction of modern system of preparation of children, teenagers and youth for family life, moral education, consultation concerning prevention of the diseases transferred sexually, formation of sexual culture in the General not in uniform system of sanitary and hygienic education of the population; carrying out voluntary mass hardware screening diagnostics to determine the level of health, evaluation of functional reserves, detection of latent pathology in educational institutions and in the workplace; development of educational programs on health for television, popular movies, CDs, health contests, etc.; creation of audio-visual images-audio and video clips, posters, posters and other advertising and promotional products that form in the mass consciousness of the installation on the ideal of a healthy person, health standard, the formation of health culture, the implementation of health programs, a healthy lifestyle; the development of means of operational medical control over persons involved in sports, participating in physical culture and health programs in educational institutions and enterprises, in combination with information interdepartmental support; formation of the need for natural health-saving technologies, organization of healthy leisure and health clubs, development of physical culture and health tourism; creation of health passport; monitoring of health to create a data Bank on the dynamics of individual and population health, obtaining operational, long-term data on mental and physical condition, its intellectual psychophysiological potential and spiritual orientation.

China has traditionally paid considerable attention to health and a healthy lifestyle. Popular areas of harmonization of the child with the environment, the use in the educational process of traditional health techniques, the formation of the school health-saving space, the collective removal of stress factors of the educational process under the guidance of the teacher. Eliminated negative factors (lack of provincial schools hot meals, failure to comply with sanitary requirements), welcome Wellness tourism,

etc. For this, as well as for the construction of state and non-state educational institutions that meet modern sanitary and hygienic requirements, significant Bank subsidies are allocated, special privileges for their return are available.

The basis of the experience of health of schoolchildren in China: following the example of adults in their orientation to a healthy lifestyle, group health-improving exercises at recess, a variety of sports activities, dances, exhibitions of health-saving orientation. The media are widely involved in this work.

In the United States, several models of health care are implemented:

- *model "School health sources for children" (SHARP)*, including the program: "Disease prevention"; "Nutrition"; "Growth and development"; "Personal health"; "Emotional health"; "Family health"; "Consumer health"; "Public health"; "Safety and first aid";
- *model "Universal healthy education for children "(CHEK),* consisting of five programs: "About me"; "How I grow"; "The food I eat"; "The choices I Make"; "How I stay healthy»;
- *model "Health schedule of schools" (PGHCP/SHCP)* aimed at the study of their own body by younger students. Increased attention is paid to the prevention of child injuries and the prevention of accidents on the road. This is a priority in the hygienic education of many countries. To improve the efficiency of work on the formation of a healthy lifestyle are widely used visibility and modern information technology.

Thus, abroad has accumulated considerable experience in the organization of public and human health, developed mechanisms and technologies of social work in the field of health. Adaptation of foreign experience in Russian practice can serve as an impetus to the development of health-saving areas of social work in Russia. Basic health-saving technologies in such work include prevention, mediation, including the implementation of social advertising technologies, social design and programming, etc.

CHAPTER 4
FUNDAMENTALS OF MEDICAL STATISTICS

4.1. The history of the development of statistics

The origins of statistics was Ancient China, which collected information about the population, its distribution by sex and age, and in the book "Shu-king" ***Confucius*** has information about the census of Ancient China in 2238 BC.

High level for its time had the state account in Ancient Rome. In 550 BC there was created a special body for carrying out censuses of the population which were carried out initially every five, in the subsequent-in ten years.

The need to account for the population was associated with the political, economic and military needs of the ancient States and was caused by the need to have information about the population able to pay taxes, to be drafted into the army.

The need for information on public administration has necessitated a description of States. One of the most famous studies belongs to ***Aristotle***, the founder of the science of human society - sociology, in which he considered economic issues. Aristotle developed the theory and built the conclusions well based on abstract reasoning, but based on a careful analysis of the facts. With a group of his students, he collected and processed materials about the state structure and laws of 158 Hellenic and barbaric States. However, the data collection was imperfect, which does not allow to talk about the scientific approach in his research.

The existence of statistics in the Middle ages is evidenced by numerous descriptions of Royal possessions, abbeys, bishops, counties. However, it is believed that the development of the account of the middle Ages is a step back. The reality of that time was low literacy of the population, Church obscurantism, fragmentation of States. All this led to a sharp drop in interest in the strict study of the truth.

Since the 16th century accounting has been a separate branch of economic accounting. An important event was the creation of the Franciscan monk and mathematician ***Luca Pacioli*** encyclopedic work "The Sum of arithmetic, geometry, the doctrine of proportions and relationships". The book was a section "Treatise on accounts and records", containing the basics of accounting. In addition, this work is a milestone in the history of probability theory, a science closely related to statistics.

With the development of social production, the growth of domestic and foreign trade, the range of phenomena taken into account has changed, the need for statistical information has increased. This expanded the scope of statistics, led to the improvement of its methods and techniques.

Thus, the way of formation of statistics began with the emergence of economic accounting, without which state activity would be impossible, and its development was due to social needs and is associated with the formation of the state.

Statistics arose with the development of capitalism in the second half of the 17th century. Almost simultaneously in Germany and England, but the forms of its origin and content were different.

The origins of statistical science were two schools - the German descriptive school of state studies and the English school of political arithmetic.

Statistics as a political science based on the recognition of the only source of observations and was considered as one together with the geography, Ethnography, legal information, etc., the Representatives of the German school believed that the main task of statistics is to describe the "attractions" of the state: public administration, territory, population, Finance, military, climate, religion, etc. They underestimated the mathematical funds of knowledge and the quantitative evaluation is treated as a special case of the General descriptions. In the works of scientists there was no analysis of relationships and patterns inherent in social processes. Hence the other name of this direction-descriptive statistics.

Representatives of the descriptive school sought:

- To systematize the existing methods descriptions of States and their "attractions»;
- Create a theory of descriptions, develop their detailed scheme;
- To keep the description only in verbal form, without numbers and outside dynamics, i.e. without reflection of features of development of the state in these or those periods of time, and only at the time of supervision.

The founder of the German descriptive school was a prominent statesman ***Hermann Conring***, who developed a system of describing the state structure. Conring believed that the subject of statistics is the study of the welfare of the country and the factors affecting it. He identified ***four types of reasons:***

- Material (economic);
- Final (sociological – satisfaction of the population with living conditions);

- Formal (legal);
- Acting (psychological – the study of personality rulers).

This approach was developed in works of ***Gottfried Akinwale***, who first introduced into scientific use the term "statistics", and ***August Ludwig Schlozer***, who developed the traditional ideas of governing and characterized statistics from the perspective of history. ***A. Slezer*** belongs the dictum: "History is statistics in motion, statistics is stationary history."

In 1749, Achenwall published a book on political science called "Statistics", which was carried out description of the political structure of the States of Europe. Information about the States, their economic power, he expressed mainly in verbal and textual form.

The most outstanding representative of the göttingen school of statistics Professor of the Goettingen University A. Schletzer largely borrowed glance at the statistics as a science, G. Akinwale. However, he refuted the notion that statistics should only describe the political structure of States, believing that the subject of statistics is the whole of society. Understanding statistics as a separate scientific discipline, he at the same time considered it as a part of politics. A. Slezer belongs to the division of statistical research to observation, summary, grouping, and analysis.

The formation of statistical science in Russia is divided into three stages: operational statistics (until the middle of the 18th century), descriptive statistics (mid - 18th-early 19th centuries) and statistics of scientific knowledge (from the beginning of the 19th century to the present day).

Population censuses conducted in the 16th - early 17th centuries, mainly for fiscal purposes, took into account only the male population, so the unit of taxation was replaced by the "soul" of the male sex.

In the second half of the 19th – early 20th centuries there was an intensive development of statistics. This was facilitated by various periodic censuses and surveys, which collected a wealth of material about the various objects of the survey.

At this time, a special scientific discipline – mathematical statistics, which is part of mathematics, began to form. The first beginnings of mathematical statistics can be found already in the works of the creators of probability theory – ***Jacob Bernoulli, Pierre Laplace*** and ***Simon Poisson***. With the help of probability theory and mathematical statistics, scientists began to study structural changes in the economy, to identify multiple and not always explicit connections of some phenomena and processes with others.

The first third of the 20th century was marked by parametric statistics. Many questions of the theory of statistical estimates were

developed on the basis of the theory of errors and the least squares method and were more important in statistical practice, but the level of use of the achievements of probability theory foreign scientists lagged behind the work of the Russian school.

A brake in the development of statistics was the fact that in the 30s.widespread point of view, according to which statistics is the science of natural phenomena and society. On this basis, the theory of the death of statistics in socialism developed due to the fact that "the expansion and strengthening of planned management with the development of the national economy should nullify it." The consequence of this theory was the struggle for "expulsion" from the statistics of mathematics "as a mathematical formalism". Obviously, this could not but affect the attitude to statistics and lead to a decrease in interest in this science.

In the development of statistics as a social science the great contribution made by Soviet scientists-statistics – ***Alexander Chuprov, Vasily Nemtinov, Stanislav Strumilin*** and many others.

During the great Patriotic war, statistics provided identification and mobilization of all available resources in the country to solve urgent problems in wartime. Urgent censuses of material resources, surveys and calculations of the number and composition of the population, labor resources, organization of operational statistics on the work of the most important military-strategic enterprises and sectors of the economy have become of paramount importance. During the great Patriotic war and 1946-1947, the Central statistical office conducted a total of 142 urgent censuses.

In the 20th century statistics is considered, first of all, as an independent scientific discipline. In 1954 academician ***B. Gnedenko*** gave the following definition: "Statistics consists of three sections:

1. Collection of statistical data, i.e. Data characterizing separate units of any mass aggregates;
2. Statistical study of the data obtained, which consists in elucidating the regularities that can be established on the basis of mass observation data;
3. Development of methods of statistical observation and analysis of statistical data. The last section, in fact, is the content of mathematical statistics".

Currently, the collection, processing and analysis of statistical information throughout the country is carried out according to the same principles, General program and methodology by the state statistics bodies headed by the Federal state statistics service.

In accordance with the requirements of the market economy in recent years, Belarus has been working hard to improve the statistical methodology and the transition to the international practice of accounting and statistics.

Thus, the history of the development of statistics shows that the statistical science was formed as a result of theoretical generalization of the best practices of accounting and statistical work accumulated by mankind, primarily due to the needs of managing the life of society. It arose together with political economy, rudiments of the theory of economy of a number of branches of national economies, and also demography.

4.2. Subject, method and objectives of statistics

Statistics is a branch of social science, which studies the quantitative side of qualitatively defined mass socio-economic phenomena and patterns of their development in specific conditions of place and time by the method of generalizing indicators.

The subject of statistics are the size and quantitative relations of qualitatively defined socio-economic phenomena, patterns of their connection and development in specific conditions of place and time.

Statistical methodology – a system of techniques, methods and techniques aimed at the study of quantitative laws, manifested in the structure, dynamics and relationships of social phenomena.

Statistical methods:

1. mass observation method,
2. sampling method,
3. grouping method,
4. summary-based analysis method,
5. method of analysis of time series,
6. correlation and regression analysis method,
7. index method.

Tasks statistics:

1. organization of work related to the preparation and conduct of the all-Russian population correspondence;
2. the priority of improving the statistics of a small enterprise;
3. creation of a unified statistical information space of Federal public authorities and coordination of their statistical activities;
4. the feasibility of revaluation of fixed assets;

5. improvement of calculations in the field of informal and hidden economy;
6. improving the quality of statistical development;
7. improvement of statistics of certain sectors of the socio-economic sphere;
8. organization of the system of municipal statistics.

4.3. Basic concepts of statistics: statistical population, units of the aggregate, varying characteristics, statistical pattern, statistical key figure

Statistical totality – a set of units (objects, phenomena), United by a single pattern and varying within the overall quality (for example, a set of enterprises that produce the same type of products, but differ in the volume of production, labor).

Under the units of the population are understood its indivisible primary elements, expressing its qualitative homogeneity, i.e. are carriers of signs (for example, firms, people, family).

Feature-an indicator that characterizes a property of the object set, considered as a random variable. Variation – a difference in the values of a feature in individual units of the statistical population. Varying signs can be quantitative (age, wages) and non-quantitative (profession).

Statistical regularity – quantitative regularity of changes in space and time of mass phenomena and processes of social life, consisting of a plurality of elements (units of the population). The statistical regularity reflects the cause-and-effect relations relating to a certain space and time, which are expressed in sequence, regularity, repeatability of events with a sufficiently high degree of probability.

A statistical indicator is a quantitative and qualitative generalization of a property of a group of units or a population as a whole (for example, the average size of the savings contribution of citizens of a country). There are individual (characterizing individual units of the population) and summary or generalizing statistical indicators.

4.4. Organization of statistical research

Observation as the initial stage of the study is connected with the collection of initial data on the issue under study. It is characteristic of many Sciences. However, each science has its own specifics, differing in their observations. Therefore, not every observation is statistical.

Statistical research is a collection, summary and analysis of data (facts) on socio-economic, demographic and other phenomena and processes of public life in the state organized according to a single program with the registration of their most significant features in the accounting records.

Distinctive features (specificity) of the statistical study are: focus, organization, mass, and consistency (comprehensiveness), comparability, documentation, accountability, practicality.

In General, the statistical study should:

- Have a public benefit purpose and a General (public) significance;
- Relate to the subject of statistics in the specific context of its place and time;
- To Express a statistical view of the accounting (and not accounting and not operational);
- Be conducted according to a pre-developed program with its scientifically based methodological and other support;
- To collect mass data (facts), which reflects the whole set of cause-and-effect and other factors that characterize the phenomenon in many ways;
- Register in the form of accounting documents of the established sample;
- To ensure there are no errors of observation or to reduce them to a possible minimum;
- Provide for certain quality criteria and ways to control the collected data, ensuring their accuracy, completeness and content;
- Focus on cost-effective data collection and processing technology;
- To be a reliable information base for all subsequent stages of statistical research and all users of statistical information.

Studies that do not meet these requirements are not statistical. Are not of statistical research, for example, monitoring and research: mother playing with child (personal question); the audience for a theatrical performance (no records for the spectacle); a research worker for physical-chemical experiments with their measurements, calculations and documentary check (not massively-public information); physician for the sick with maintaining medical cards (records); accountant for the movement of funds in the Bank account of the enterprise (accounting); journalists for public and personal life of government officials or other celebrities (not subject to statistics).

Statistical totality – a set of units with mass, typical, qualitative homogeneity and the presence of variation.

Statistical totality consists of material objects (Employees, enterprises, countries, regions), is the object of statistical research.

Statistical observation is the first stage of statistical research, which is a scientifically organized collection of data on the studied phenomena and processes of social life.

4.5. Stages of statistical operations

Any statistical study consists of six stages.

Step 1. Statistical research begins with the formation of the primary statistical information base for the selected set of indicators.

Carrying out statistical observations.

Use of official state and corporate (firm) sources.

The use of scientific statistical research in journals, newspapers, monographs, etc.

Use of electronic media (Internet, CD, diskettes, etc.).

Step 2. Primary aggregation and grouping of statistical data.

Summaries, groupings, histograms, polygons, cumulates (ogives), graphs of frequency distribution (parts).

Formation of time series and their primary analysis. Graphical forecast (with the concept of "optimist", "pessimist", "realist").

The calculation of moments of K-th order (mean, variance, measures of skewness, measure of kurtosis) for the purpose of determining the performance center extension, indicators of variation, indicators of skewness (asymmetry), kurtosis (attraversando).

Formation and primary calculations of complex statistical indicators (relative, multi-level summary).

The formation and initial calculations of the index performance.

Step 3. The next stage of statistical research includes the economic interpretation of the primary generalization.

Economic and financial evaluation of the object of analysis.

Formation of anxiety (satisfaction) of economic and financial situations.

A warning about approaching the threshold of statistical values in the application, as a rule, the macroeconomic objectives.

Diversification of primary statistical generalization of the obtained applied results in the hierarchy of power, partnership, business.

Step 4. Computer analysis of primary generalized and extended (three-dimensional) statistical data.

The analysis of variance in advanced statistics.

Analysis of the dynamics of extended statistical data.

Analysis of links between extended statistics.

Multidimensional summaries and groupings.

Step 5. Computer forecasting in the selected most important areas.

Least square method.

Moving averages.

Technical analysis.

Presentation of consolidated analysis and forecast options with recommendations on making adjustments to management and investments.

Step 6. A generalized analysis of the results obtained and their validation by statistical criteria.

Step 7. The final stage of the statistical study is the management decision.

4.6. Statistical quantities

The concept of absolute values

Absolute values are the results of statistical observations. In statistics, unlike mathematics, all absolute values have dimension (unit of measurement), and can also be positive and negative.

Absolute value units reflect the properties of statistical population units and can be simple, reflecting 1 property (for example, cargo mass measured in tons) or complex, reflecting several interrelated properties (for example, ton-kilometer or kilowatt-hour).

Units of absolute values can be of 3 types:

Natural – used to calculate quantities with homogeneous properties (e.g., pieces, tons, meters, etc.). Their disadvantage is that they do not allow to summarize heterogeneous quantities.

Conditionally natural – applied to absolute values with homogeneous properties, but manifesting them in different ways. For example, the total mass of energy carriers (wood, peat, coal, petroleum products, natural gas) is

measured in *t.c.f. – tons of conventional fuel*, as each type has a different calorific value, and the standard adopted 29.3 mJ/kg. Similarly, the total number of school notebooks is measured in *c.sh.n. – conditional school notebooks size 12 sheets*. Similarly, the production of canned food is measured in *c.c.c. - conventional cans with a capacity of 1/3 liter*. Similarly, the production of detergents is reduced to a conditional fat content of 40%.

Value units are expressed in rubles or another currency, representing a measure of the value of the absolute value. They allow to sum up even heterogeneous values, but their disadvantage is that it is necessary to take into account the factor of inflation, so the statistics always recalculates the values in comparable prices.

Absolute values can be ***moment*** or ***interval***. ***Moment*** absolute values show the level of the phenomenon or process being studied at a certain point in time or date (for example, the amount of money in your pocket or the value of fixed assets on the first day of the month). ***Interval*** absolute values are the total accumulated result for a certain period (interval) of time (for example, salary for a month, quarter or year). Interval absolute value, unlike torque, allow for subsequent summation.

The absolute value of the statistics is ***X*** and ***the total number in the statistical population*** is ***N.***

The number of variables with the same value of the attribute denoted by ***f*** and is called the ***frequency (occurrence)***.

By themselves, the absolute statistical values do not give a complete picture of the phenomenon under study, since they do not show its dynamics, structure, the ratio between the parts. For these purposes, relative statistical values are used.

Example. Find the conditional-natural value:

Let's say we produce notebooks:

12 sheets each-1000 pieces;

24 sheets-200 pieces;

on 48 sheets-50 pieces;

on 96 sheets-100 PCs —

Decision: We set the standard-12 sheets.

Consider the conversion factor:

$\frac{12}{12} = 1$

$\frac{24}{12} = 2$

$\frac{48}{12} = 4$

$\frac{96}{12} = 8$

Answer: Conditionally natural value =1000*1 + 200*2 + 50*4 + 100*8 = 2400 notebooks on 12 sheets.

In a market economy the highest value and use value have a unit of measurement: rubles, dollars, Euro, conventional money units, etc. To assess the socio-economic phenomena and processes are indicators of current or actual prices or comparable prices.

By itself, the absolute value does not give a complete picture of the phenomenon under study, does not show its structure, the relationship between the individual parts, the development in time. It does not reveal the relationship with other absolute values. Therefore, statistics, not limited to absolute values, widely uses General scientific methods of comparison, generalization.

Absolute values are of great scientific and practical importance. They characterize the availability of resources and are the basis for a variety of relative indicators.

4.7. Concept and types of relative values

A relative statistic is the result of the ratio of two absolute statistic values.

If the absolute values are correlated with the same dimension, the resulting relative value will be dimensionless (dimension will be reduced) and is called the coefficient.

The main condition for the correct calculation of relative values is the comparability of the compared values and the presence of real connections between the studied phenomena.

$$\textbf{\textit{Relative value}} = \frac{\textit{Value to compare}}{\textit{Basis}}.$$

The value in the ratio numerator is called the current value or the value to be compared.

The value in the denominator of the ratio is called the base or the base of the comparison.

According to the method of obtaining relative values — it is always the value of derivatives (secondary). They can be expressed:

- ***as the coefficients***, if the comparison is taken as one ($\frac{\text{Absolute value}}{\text{Basis}}$) * 1;
- ***as the percentage*** if the comparison base is taken as 100 ($\frac{\text{Absolute value}}{\text{Basis}}$) * 100;
- ***as the ppm***, when the base of comparison is taken to be 1000 ($\frac{\text{Absolute value}}{\text{Basis}}$) * 1000. ***For example***, the birth rate, in the form of a relative value, calculated in ppm, shows the number of births per year per 1,000 people;
- ***as the produziere*** when the base of comparison is taken to be 10000 ($\frac{\text{Absolute value}}{\text{Basis}}$) * 10000.

There are the following ***types of relative statistical quantities***:

- The relative magnitude of the dynamics;
- Relative value of the target;
- The relative value of the plan;
- The relative value of the structure;
- The relative value of coordination;
- The relative value of the intensity;
- Relative value of comparison.

Artificial dimensionality of coefficients is used, as a rule, in colloquial speech and in the formulation of results, and in the calculations themselves it is not used. Most often, percentages are used, in which it is customary to Express the obtained values of relative values.

More often, instead of the name of the relative statistical value is used a shorter term-synonym – ***index*** (from lat. index – the index ratio).

Depending on the types of correlated absolute values in the calculation of relative values, different types of indices are obtained: dynamics, target, plan execution, structure, coordination, comparison, intensity.

Example. Relative size of structure.

A relative value structure (structure parameter) – describes the proportion of parts of an entirety of the total. The relative size of a structure is often referred to as "specific gravity" or "share".

The structure parameter = measure of the part of a whole / indicator across the population as a whole

Example: the company employs 100 managers, 20 couriers and 10 managers. Only 130 people.

Share of couriers = ($\frac{20}{130}$) * 100% = 15%

Share of managers = ($\frac{100}{130}$) * 100% = 77%

The structure parameter of heads = 8%

The sum of all the indicators of the structure must be equal to 100% or one.

4.8. The nature and types of averages

The average value is a statistical indicator that gives a generalized characteristic of the varying characteristic of homogeneous units of the population.

The value of the average gives a generalizing quantitative characteristic of the whole population and characterizes it in relation to this feature.

For example, the average wage gives a generalized quantitative characteristic of the condition of payment of labour considered the totality of employees. In addition, using averages, it is possible to compare different information sets. For example, it is possible to compare different organizations in terms of productivity of labour and the level of capital productivity, material yield and other indicators.

The essence of the average is that it mutually annuls random deviations of the values of the trait and takes into account changes caused by the main factor.

Statistical processing by the method of average values is to replace the individual values of the varying characteristic of a balanced average value.

For example, an individual development of 5 tellers the commercial Bank of the day amounted to 136, 140, 154 and 162 of the operation. To get the average number of operations per day performed by one operator, it is necessary to add these individual indicators and the resulting amount divided by the number of operators (operations).

As you can see from the example above, the average number of operations does not coincide with any of the individual, since no operator has made 150 operations. But if we imagine that each operator has made 150 operations, their total amount will not change, and will also be 750. Thus, we have come to the basic property of averages: the sum of individual values of a trait is equal to the sum of average values:

$$x_1 + x_2 + x_3 + \ldots + x_n = \Sigma x_n = \bar{x} + \bar{x} + \bar{x} + \ldots + \bar{x} = \Sigma \bar{x},\ \Sigma x_n = = \Sigma \bar{x}$$

This property once again emphasizes that the average value is a generalizing characteristic of the whole statistical population.

Averages are widely used in various fields of knowledge. They play a particularly important role in the economy and statistics: in the analysis, planning, forecasting, in the calculation of standards and in assessing the level achieved. The mean is always a named quantity and has the same dimension as the individual unit of the population.

The most important conditions (principles) for the correct calculation and use of averages are the following:

1. In each case, it is necessary to proceed from the qualitative content of the averaged feature, take into account the relationship of the studied features and the available data for the calculation.

2. The individual values from which the averages are calculated must be of a homogeneous population, and their number must be significant.

4.9. Types of averages

Average values are divided into two large classes: ***power averages*** and ***structural averages***.

Power averages:

- Arithmetic;
- Harmonic;
- Geometric;
- Quadratic.

Average structural:

- Mode;
- Median.

The choice of the form of the average depends on the initial base of calculation of the average and on the available economic information for its calculation.

The initial basis of the calculation and a guide to the correct choice of the form of the average value are economic relations, expressing the meaning of the average values and the relationship between the indicators.

Calculation of some average values:

- Average wage 1 worker = $\frac{\text{Wage fund}}{\text{Number of employees}}$;
- Average price of 1 product = $\frac{\text{Production cost}}{\text{Number of units}}$;
- The average cost of 1 products = $\frac{\text{Manufacturing Cost}}{\text{Number of units}}$;
- Average yield = $\frac{\text{Gross yield}}{\text{Sown area}}$;
- Average labor productivity = $\frac{\text{Volume of production,works,services}}{\text{Hours worked}}$;
- Average labor intensity = $\frac{\text{Time worked}}{\text{Volume of production,works,services}}$;
- Average capital intensity = $\frac{\text{Average value of fixed assets}}{\text{Volume of production,works and services}}$;
- Average return on assets = $\frac{\text{Volume of production,works and services}}{\text{Average value of fixed assets}}$;
- The average capital intensity ratio = $\frac{\text{Average value of main production funds}}{\text{Average number of production staff}}$;
- Average reject rate = $\frac{\text{Cost of defective products}}{\text{Cost of all produced products}}$ * 100%.

Power averages

Power averages depending on the presentation of the initial data can be ***simple*** and ***weighted***.

If the option occurs once, the calculations are simple average (such as salary in 3 thousand roubles found only one working), and if the option is repeated uneven number of times, that is, different frequencies (for example the salary in 4 thousand roubles found five employees), then the calculation we perform a weighted average.

The power-law formula is simple in general:

$$x=\left(\frac{\sum_{i=1}^{n}x_i^k}{n}\right)^{\frac{1}{k}}=\sqrt[k]{\frac{\sum_{i=1}^{n}x_i^k}{n}}=\sqrt[k]{\frac{x_1^k+x_2^k+\ldots+x_n^k}{n}}$$

where:

x — individual characteristic value units aggregate;

k — exponent of the average value;

n — number of units of the population.

The formula for the exponential weighted average in general:

$$x=\left(\frac{\sum_{i=1}^{n}x_i^k f_i}{\sum_{i=1}^{n}f_i}\right)^{\frac{1}{x}}=\sqrt[k]{\frac{\sum_{i=1}^{n}x_i^k f_i}{\sum_{i=1}^{n}f_i}}=\sqrt[k]{\frac{x_1^k f_i+x_2^k+\ldots+x_n^k f_n}{f_1+f_2+\ldots+f_n}}$$

where:

f— repetition rate options.

Depending on the value of the exponent of the average value, we obtain different types of averages:

Type of power average	**The exponent of the medium (k)**	**Calculation formula**	
		Simple	**Weighted**
Harmonic	-1	$x=\frac{n}{\sum_{i=1}^{n}\frac{1}{x_i}}$	$x=\frac{\sum_{i=1}^{n}x_i f_i}{\sum_{i=1}^{n}\frac{x_i f_i}{x_i}}$
Geometric	1	$x=\sqrt[n]{x_1 x_2 \ldots x_n}$	$x=\sqrt[\sum f_t]{x_1 x_2 \ldots x_n}$
Arithmetic	0	$x=\frac{\sum_{i=1}^{n}x_i}{n}$	$x=\frac{\sum_{i=1}^{n}x_i f_i}{\sum_{i=1}^{n}f_i}$
Quadratic	2	$x=\sqrt{\frac{\sum_{i=1}^{n}x_i^2}{n}}$	$x=\sqrt{\frac{\sum_{i=1}^{n}x_i^2 f_i}{\sum_{i=1}^{n}f_i}}$

When calculating different power averages from the same data, the values of the means will be different. The higher the exponent, the greater the value of the mean, i.e. the rule of majority of the means:

$$\bar{x}_{harm} \leq \bar{x}_{geom} \leq \bar{x}_{arithm} \leq \bar{x}_{quadr} \leq \bar{x}_{cub}.$$

4.10. Dynamic lines, their types, methods of alignment. Indicators

In the study of the dynamics of a phenomenon resorted to the construction of a dynamic series.

A dynamic lines is a series of homogeneous statistical quantities showing the change of a phenomenon in time and arranged in chronological order over time. The numbers that make up the dynamic series are called levels.

The level of the lines – the size (value) of a phenomenon, achieved in a certain period or at a certain point in time. Series levels can be represented by absolute, relative, or average values.

Dynamic lines are divided into:

a) simple (consisting of absolute values) - can be:

1) moment (instantaneous) – consists of values that characterize the phenomenon at a certain point (statistical data, usually recorded at the beginning or end of the month, quarter, year).

2) interval – consists of numbers that characterize the phenomenon for a certain period of time (interval) – for a week, month, quarter, year (data on the number of births, deaths per year, the number of infectious diseases per month). The peculiarity of the interval series is that its members can be summarized (the interval is enlarged), or split.

b) complex (consisting of relative or average values).

Dynamic lines can undergo transformations, the purpose of which is to identify the characteristics of the changes in the studied process, as well as to achieve clarity.

Dynamic lines indicators:

a) the levels of the lines are the values of the members of the series. The value of the first member of the series is called the initial (initial) level, the value of the last member of the series - the final level, the average of all members of the series is called the average level.

b) absolute increase (decrease) – the value of the difference between the subsequent and previous levels; the increase is expressed in numbers with a positive sign, the decrease – with a negative sign. The value of increase or loss reflects changes in the levels of the dynamic series for a certain period of time.

c) growth rate (decrease) – shows the ratio of each subsequent level to the previous level and is usually expressed as a percentage.

d) growth rate (loss) - the ratio of the absolute increase or decrease of each subsequent member of the series to the level of the previous, expressed as a

percentage. The growth rate can also be calculated by the formula: Growth Rate-100%.

The absolute value of one percent of growth (loss) – is obtained from the division of the absolute value of growth or decline in the rate of growth or loss for the same period.

For a more visual expression of the increase or decrease of the series, you can convert it by calculating the visibility indicators showing the ratio of each member of the series to one of them, taken as one hundred percent.

Sometimes the dynamics of the phenomenon under study is presented not as a continuously changing level, but as individual abrupt changes. In this case, to identify the main trends in the development of the phenomenon under study resort to the alignment of the dynamic series.

The following methods can be used:

a) interval aggregation – summation of data for a number of related periods. As a result, the results are obtained for longer periods of time. This smooths random fluctuations and more clearly defines the nature of the dynamics of the phenomenon.

b) calculation of the group average – determination of the average value of each enlarged period. To do this, it is necessary to sum the adjacent levels of neighboring periods, and then divide the amount by the number of summands. This provides for more clarity of changes over time

c) calculation of the moving average – to some extent eliminates the influence of random fluctuations on the levels of the dynamic series and more markedly reflects the trend of the phenomenon. When it is calculated, each level of the series is replaced by the average value of the given level and two adjacent ones. Most often summed sequentially three members of the series, but you can take more

d) graphic method – alignment by hand or using a ruler, compass graphic image of the dynamics of the phenomenon under study.

e) least squares alignment is one of the most accurate ways to align the dynamic series. The method aims to eliminate the influence of temporary causes, random factors and identify the main trend in the dynamics of the phenomenon caused by the influence of only long-acting factors. Alignment is the line most appropriate to the nature of the dynamics of the phenomenon under study, in the presence of a basic trend of increase or decrease in the frequency of the phenomenon. Such a line is usually a straight line that most accurately characterizes the main direction of change, but there are other dependencies (quadratic, cubic, etc.). This method makes it possible to quantify the identified trend, estimate the average rate of its development and calculate the projected levels for the next year.

4.11. Assessment of the reliability of the research results

The reliability of statistical data is understood as the degree of their compliance with the displayed reality, i.e. reliable data are those that do not distort and correctly reflect the objective reality.

To assess the reliability of the results of the study means to determine the probability with which it is possible to transfer the results obtained on the sample to the entire General population. On this basis, the assessment of the reliability necessary for part of the phenomenon can be judged about the phenomenon in General and its laws.

Evaluation of the reliability of the results of the study consists of the definition:

* Representativeness errors — (mean and relative error) – ***m***;

* Confidence limits of average (or relative) values;

* Reliability of the difference of mean (or relative) values according to the criterion ***t***.

The degree of diversity of features in the studied (sample) population largely depends on their representativeness in relation to the signs of observation units in the General population. The representativeness of features in the form of average values is characterized by the size of their errors (the error of the arithmetic mean value ($\boldsymbol{m_P}$), depending on the size of the mean square deviation.

To assess the reliability of relative values (***P***), as well as for averages, it is necessary to calculate their error ($\boldsymbol{m_P}$).

Errors of average and relative indicators are nominal values, i.e. have the same dimension as the indicators themselves. The presence of an error in the indicators allows not only to determine their reliability, but also makes it possible to calculate their confidence limits, as well as the reliability of the difference of the compared values.

The definition of the confidence limits of the mean and relative values allows us to find two of their extreme values - the minimum possible and the maximum possible, within which the studied indicator can occur in the whole population. Based on this, the confidence limits (or confidence interval) are the limits of the average or relative values, beyond which due to random fluctuations has a small probability.

The confidence limits of the arithmetic mean in the General population is determined by the formula: $M_{gen} = M_{sam} \pm tm_M$

for relative value:$P_{gen} = P_{sam} \pm tm_P$

where M_{gen} и P_{gen} - values of average and relative values for the General population;

M_{sam} и P_{sam} – values of average and relative values obtained on a sample population;

m_M и m_P – errors of mean and relative values;

t – confidence criterion (the criterion of accuracy, which is set in the planning of the study and can be 2 or 3);

t_m – is the confidence interval or Δ limit error of the indicator obtained in the sample study.

It should be noted that the value of the criterion t is to some extent related to the probability of error-free forecast (*p*), expressed in %. It is chosen by the researcher, guided by the need to get the result with the right degree of accuracy.

So the probability of faultless prognosis of 95% criterion value *t* is 2 to 99% - 3. The above dimensions of the confidence criterion t are acceptable only for statistical aggregates with more than 30 observations. With a smaller volume of the population, special tables are used to determine the criterion t. In these tables, the required value is located at the intersection of the row corresponding to the population size (n-1) and the column corresponding to the probability level of error-free forecast (95%; 99%; 99,9%), selected researcher. In medical research, the probability of error-free prognosis (p) of 95% or more is accepted when establishing the confidence limits of any indicator. This means that the value of the indicator obtained on the sample population should occur in the General population in at least 95% of cases.

In medical research, there is often a need to evaluate the indicators expressed as the average and relative values that are obtained in different statistical aggregates. It is required not only to determine the difference (difference) of the compared indicators, but also to determine its reliability. The latter is estimated using the confidence criterion (or accuracy criterion) *t*.

The presence or absence of significant differences between the compared values is judged by the size of the obtained criterion t. If the criterion t is 2, the difference is reliable and it can be stated with the probability of error – free forecast equal to 95% (at t = 3 and more – with the probability of error – free forecast – 99%). The value of the criterion less than 2 indicates an unreliable difference in the compared indicators.

4.12. Methods of standardization

A standardization method is a technique or set of techniques by which the goals of standardization are achieved.

The following methods are widely used in the standardization work.

Ordering of standardization objects is a universal method in the field of standardization of products, processes and services. Ordering as diversity management is primarily related to the reduction of diversity. The result of the work on ordering are, for example, restrictive lists of components for the final finished product; albums of standard designs of products; standard forms of technical, administrative and other documents. Ordering as a universal method consists of separate methods: systematization, selection, simplification, typing and optimization.

Systematization of objects of standardization is scientifically based, consistent classification and ranking of a set of specific objects of standardization. An example of the result of the work on systematization of products is The all-Russian classification of industrial and agricultural products (OKP), which systematizes all commodity products (primarily by industry) in the form of various classification groups and specific product names.

The selection of objects of standardization is the activity consisting in the selection of these particular objects, which is recognized suitable for further production and use in social production.

Simplification is an activity consisting in the determination of such specific objects, which are deemed inappropriate for further production and application in public production.

Selection and simplification processes are carried out in parallel. They are preceded by the classification and ranking of objects and a special analysis of the prospects and comparison of objects with future needs.

Classification of objects of standardization – activities for the establishment of model (model) objects — designs, technology rules, forms of documents. In contrast to the selection of selected specific objects subjected to any technical changes aimed at improving their quality and versatility.

Optimization of objects of standardization is to find the optimal main parameters (destination parameters), as well as the values of all other indicators of quality and efficiency. In contrast to the works on selection and simplification, based on simple methods of evaluation and justification of decisions, for example, expert methods, optimization of standardization

objects is carried out by applying special economic and mathematical methods and optimization models. The purpose of optimization is to achieve the optimal degree of ordering and the maximum possible efficiency according to the selected criterion.

Parametric standardization. The parameter of production is a quantitative characteristic of its properties.

The most important parameters are the characteristics that determine the purpose of the product and the conditions of its use:

- size parameters (e.g. size of clothes and shoes, capacity of dishes);
- weight parameters (weight of certain types of sports equipment);
- parameters characterizing the performance of machines and devices (performance of fans and polishers, speed of movement of vehicles);
- energy parameters (engine power, etc.).

Products of a certain purpose, principle of operation and design, i.e. products of a certain type, are characterized by a number of parameters. A set of set parameter values is called a parametric series. A kind of parametric series is a size series. For example, for fabrics the size range consists of separate values of width of fabrics, for ware — separate values of capacity. Each size of a product (or material) of one type is called a standard size. For example, 105 sizes of men's clothing and 120 sizes of women's clothing are now installed.

The process of standardization of parametric series (parametric standardization) – is the selection and justification of the appropriate nomenclature and the numerical value of the parameters. This problem is solved by mathematical methods.

Unification of products. Activities to rationally reduce the number of types of parts, units of the same functional purpose is called the unification of products. It is based on classification and ranking, selection and simplification, typing and optimization of finished product elements.

The main areas of unification are:

- development of parametric and standard-size series of products, machines, equipment, devices, units and parts;
- development of standard products in order to create unified groups of homogeneous products;
- development of unified technological processes, including technological processes for specialized production of cross-industry applications;
- limiting the appropriate minimum nomenclature allowed for the use of products and materials.

The results of the work on the standardization of processed differently: it may be the albums of uniform (standardized) parts, components, Assembly units; standards types, settings, sizes, designs, brands etc.

Depending on the area of unification of products may be cross-industry (unification of products and their elements of the same or similar purpose, manufactured by two or more industries), industry and factory (unification of products manufactured by one industry or one enterprise). Depending on the methodological principles of the unification can be intraspecific (families of similar products) and interspecific or interproject (units, units, parts of different types of products).

Aggregation. Aggregation is a method of creating machines, devices and equipment from separate standard unified units, repeatedly used in the creation of various products on the basis of geometric and functional interchangeability.

Aggregation is widely used in mechanical engineering and radio electronics. The development of mechanical engineering is characterized by the complexity and frequent changeability of machine design. For the design and manufacture of a large variety of machines required in the first place to dismember the design of the machine into independent Assembly units (units) so that each of them performed a specific function in the machine. It allowed to specialize production of units as independent products which work can be checked independently of all machine.

Comprehensive standardization. At complex standardization purposeful and systematic establishment and application of system of the interconnected requirements as to the object of complex standardization as a whole, and to its basic elements for the purpose of the optimum solution of a specific problem are carried out. With regard to products — is the establishment and application of interrelated in its level requirements for the quality of finished products necessary for their manufacture of raw materials, materials and components, as well as the conditions of conservation and consumption (operation). The practical implementation of this method are integrated standardization programs (ICS), which are the basis for the creation of new equipment, technology and materials.

Due to the sharp reduction in funding for standardization work in the last decade, work on integrated standardization is carried out in a very limited volume, mainly within the framework of Federal targeted programs that contain a section on regulatory quality and safety of works and services.

Advanced standardization. The method of advanced standardization is to establish increased in relation to the already achieved in practice the

level of norms and requirements for standardization objects, which according to forecasts will be optimal in the future.

Standards can not only fix the level of development of science and technology, as due to the high rate of moral aging of many products, they can become a brake on technological progress. In order to ensure that standards do not hinder technological progress, they should establish long-term quality indicators with an indication of the timing of their provision by industrial production. Higher standards need to standardize the prospective types of products, production of which has not yet been started or is in the early stages.

4.13. Graphic images in statistics

The results of the statistical study can be presented in the form of graphic images, which allows to demonstrate the results more clearly and facilitates the analysis.

There are several types of graphic images, the most commonly used charts (linear, radial, bar, ribbon, histograms, sector, etc.), cartograms, cartograms.

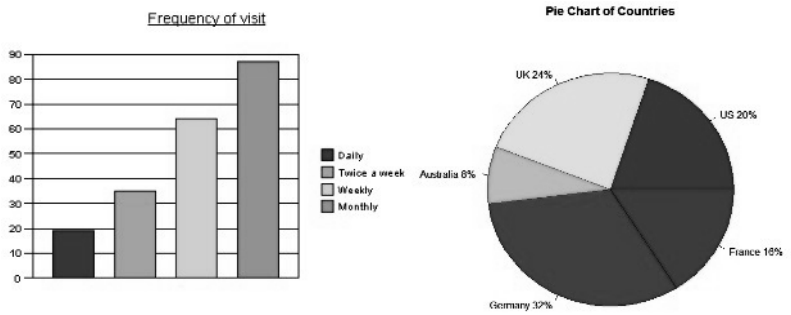
The following rules must be observed when constructing graphic images:

- data on the chart should be placed from left to right and from bottom to top;
- a prerequisite for the construction of the schedule-compliance with the scale;
- zero points of the scales, if possible, should be shown in the diagram;
- the figures showing the division of scales are placed on the left or at the bottom of the corresponding scale;
- lines representing the diagram of the depicted phenomenon should be of a different type than auxiliary lines;
- on the curve reflecting the dynamics of the phenomenon, it is necessary to note all the points corresponding to individual observations;
- in diagrams showing the structure, both the zero line and the 100% line must be shaded;
- the represented graphic values shall have digital designations on the chart or in the table attached to it;
- symbols used in the construction of the chart (color, hatching, shapes, signs) should be explained;
- each chart should have a clear, concise title reflecting its content;
- the name of the chart should be placed under the picture.

4.14. Types of graphs

Economic analysis also makes extensive use of graphics, such as graphs and charts.

Graphs are the representation of economic indicators at a certain scale based on the use of geometric methods. The graphs illustrate the text part of the analytical notes very well.



Graphs represent the development or state of the studied economic phenomenon in a generalized form and provide an opportunity to visually observe the trends and patterns that provide information to the analyst, expressed in the form of numerical data. Charts are most often used in economic analysis in the form of charts.

According to the method of plotting charts are divided into charts and statistical maps.

4.15. The elements of graphing

The main advantage of graphs – visibility. With proper construction of the chart, statistical indicators attract attention, become expressive, concise and memorable.

For plotting it is necessary to know for what purposes the graph is made, to study the source material and to know the technique of graphic images.

Graphs in statistics are called reference images to numerical quantities and their relationships in a variety of geometric images, dots, lines, plane figures, etc. The use of graphs for the presentation of statistical indicators makes it possible to give the latter visibility and expressiveness, to facilitate their perception, and in many cases helps to understand the essence of the phenomenon under study, its regularities and features, to see the trends of its development, the relationship of the indicators characterizing it.

Each graph consists of a graphic image and auxiliary elements. A graphic image is a collection of points, lines, and shapes that represent

statistical data. These signs constitute the actual linguistic fabric graphics, it is based on.

Auxiliary elements of the chart are:

A graph field is the space on which the geometric shapes that make up the graph are placed.

Geometric characters or images is diverse signs, which represent the statistical value. In statistical graphs, points, straight line segments, squares, rectangles, as well as figures in the form of drawings or silhouettes of the depicted objects are used as geometric signs.

The sign is the basis of the graph, its language. The same data should be graphically represented by different signs depending on what aspect of the phenomenon should emphasize the graph, what to focus the attention of its reader. For example, to show the trend of industrial production over a number of years, it is advisable to use segments of straight lines connecting the points on the graph field. The direction of straight lines up (down) will indicate an increase (decrease) in industrial production, and the angle of inclination will characterize the intensity of this continuous process for individual periods. If the task is to show the change in industrial production, then the same data should be depicted in the form of rectangular columns of different heights.

Large-scale benchmarks of statistical graphs is the scale, scale and scale marks.

Scale is a conditional measure of converting a numerical value into a graphical value and Vice versa. When plotting a graph, the scale must be such that the data to be plotted fits on the graph field. The vertical scale of the chart should have a zero point. In cases where the minimum value of the attribute is much higher than zero, it is not advisable to count from the zero point, since the graph field will be filled unevenly. In such cases, it is recommended to break the vertical scale.

A scale is a line divided into segments by points. The most commonly used in statistical graphs are uniform straight-line scale scales located along the coordinate axes, in which the segments between two adjacent points (graphical intervals) are strictly proportional to the size and time periods of the data displayed on the chart. In the pie charts use a curved scale. The area of the circle is divided into sectors in proportion to the numbers shown on the graph.

Large-scale signs are the standard values depicted on the chart as a separate graphic symbols: squares, circles, drawings, silhouettes etc. They are used for comparison of graphic symbols with the sign of the reference.

Graph explication is an explanation that reveals the content of the graph: graph title, units of measurement, symbols.

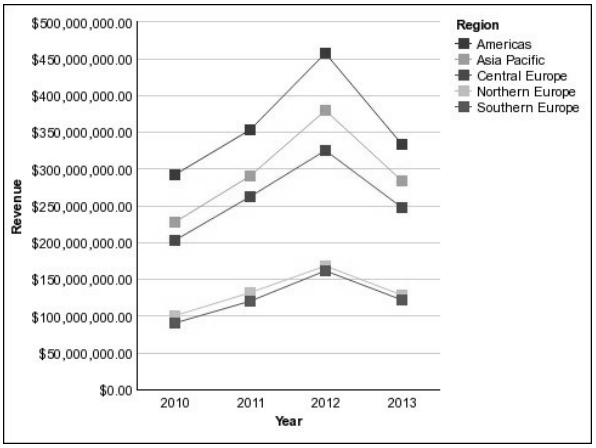
Explanatory notes to individual items of the chart can be placed either on the chart or in the form of the legend outside of the chart. All labels are recommended to be horizontal. Do not use too variegated and bright colors to paint the graphs. The title of the graph should answer three questions briefly and accurately — what, where, when?

The graphs used to represent statistical data are extremely diverse.

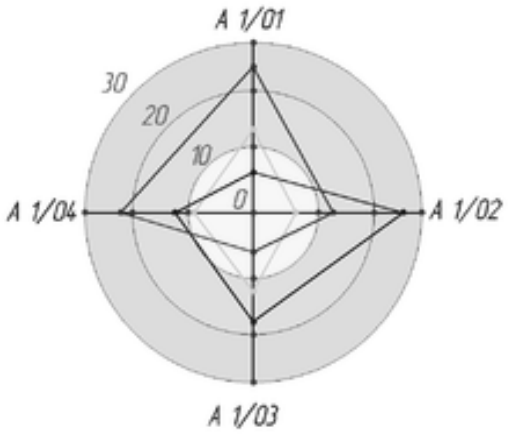
Graphic images are most often used to compare statistical values, to determine the role of individual factors in their totality, to study the structure and structural shifts, the relationship between features, changes in phenomena in time, to determine the degree of propagation of the phenomenon in space, etc. The ***main elements of graphs depicting quantitative relations are the scale, scale, coordinate axes and numerical (coordinate) grid***.

The graph should have a title that reflects the content of the phenomenon depicted, the time and place to which the data refer, and the interpretation of the symbols. For greater clarity, the graph used different hatching, coloring, etc.

4.16. Types of charts



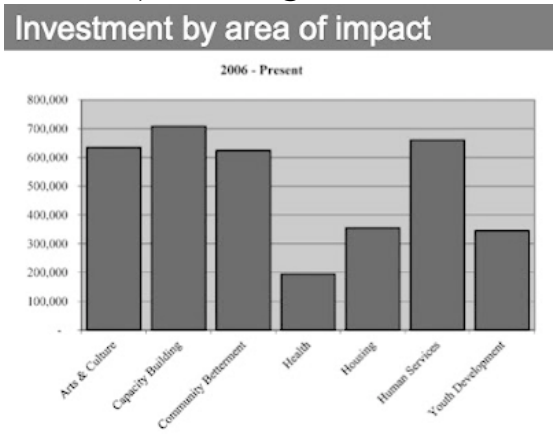
A) Line diagrams – allow you to depict the dynamics of the phenomenon (changes in indicators over time). The linear diagram is constructed in a system of rectangular coordinates, its construction should take into account the relationship between the base and the height – x abscissa and y ordinate, based on the principle of "Golden section": this ratio should be 1.6:1. On the horizontal axis (the abscissa axis) the segments denoting the time periods are postponed. On the vertical axis (ordinate axis) the dimensions of the studied phenomenon are deposited. A prerequisite for the construction of the graph – scale. On one chart, you can draw several lines that differ

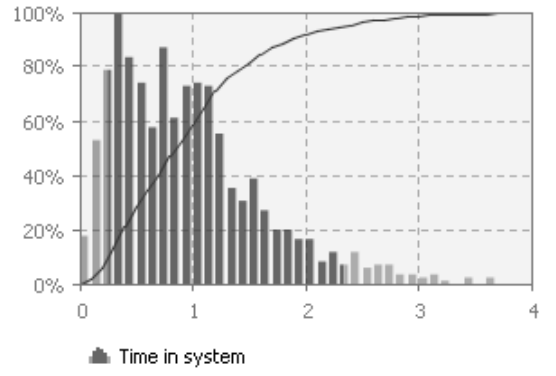


from each other in color, thickness or shape of the dotted line.

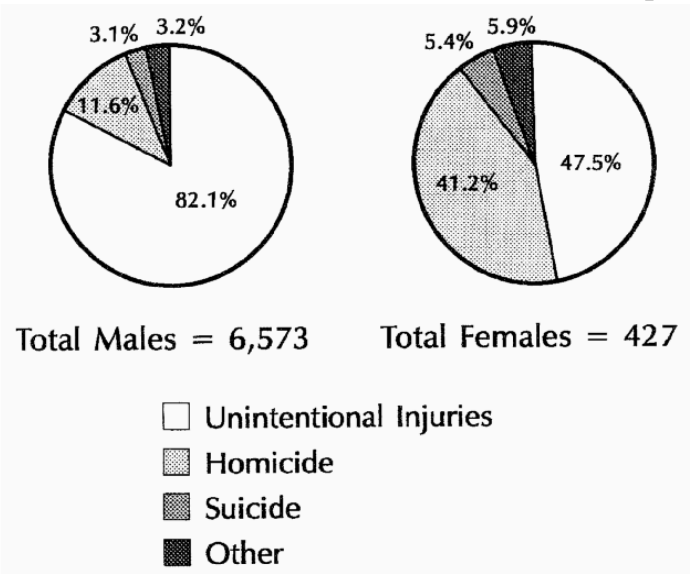
B) Radial diagrams (polar coordinates diagrams, linear-circular diagrams, vector diagrams) – are used for the image of seasonal (sub-decadal, monthly, quarterly) and other oscillations having a closed, cyclic character (per day, week, etc.). To build them, the circle is divided into as many sectors as the time period taken to study the phenomenon is divided into parts (for example, 12 – in the study of monthly fluctuations during the year; 7 – in the study of the phenomenon for the week). On each of the radii in compliance with the scale, the indicators are noted, the obtained points are connected by straight lines. The start of radius marking starts with a radius corresponding to zero degrees and continues clockwise.

C) Bar diagrams – are built on the same principle as the linear, in a coordinate system, in compliance with the scale, but in which vertically or horizontally drawn lines correspond to rectangles. These charts are used to show the comparative magnitude of a phenomenon over a specific period of time, for example, the comparative population by country, the availability of doctors over the years, and so on.





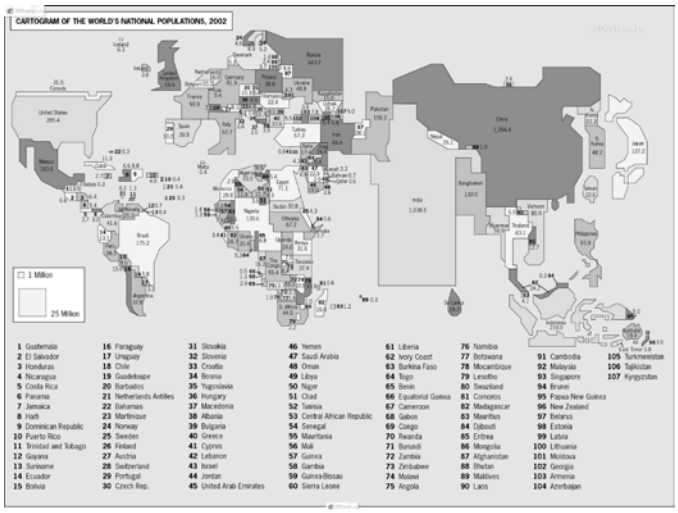
D) Histograms – in the form of rectangles, triangles, figures allow to depict homogeneous statistical indicators that are not related to each other. These diagrams are used for graphical representation of statistical quantities characterizing the statics of the phenomenon in different aggregates. They are also built in a rectangular coordinate system in compliance with the scale. For example, histograms are used to graph mortality rates in different age groups; to demonstrate hospital mortality rates in different hospitals of the city; to depict the prevalence of tuberculosis in various social groups, etc.



E) Sector diagrams – used to demonstrate the

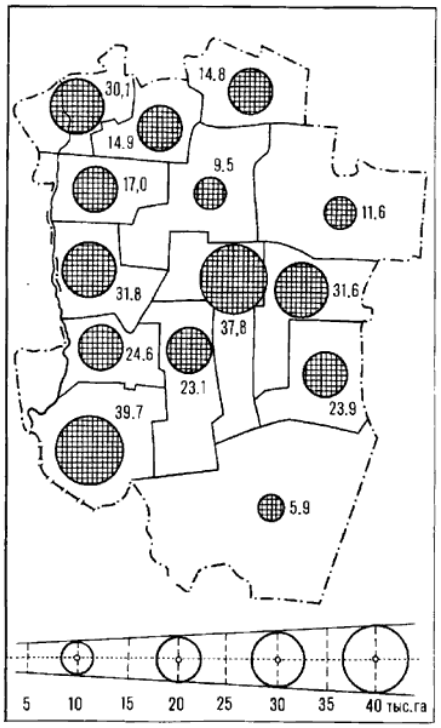
structure of the phenomenon under study, the image of the phenomenon as a whole. They are a circle taken as a whole (100%), in which individual sectors correspond to parts of the phenomenon depicted. This type of diagrams is used for graphic representation of extensive indicators. In pie charts, vectors representing individual parts of the phenomenon under study are arranged in ascending or descending order by clockwise motion and have different colors or hatching.

E) Intra-Column diagrams can also be used to show the structure of a phenomenon. In this case, the height of the column is taken as 100%, the entire column is divided into component parts, which correspond to the shares of the phenomenon as a percentage.



Statistical maps are a type of graphic images on the schematic (contour) map of statistical data characterizing the level or degree of spread of a phenomenon or process in a certain area. Distinguish between cartograms and orthodiagram.

A cartogram is a schematic (contour) map or a plan of the area on which the shading of different density, points or coloring shows the comparative intensity of any indicator within each unit of territorial division mapped (for example, population density by countries, Autonomous republics, regions; distribution of respondents by votes for different parties, etc.). In turn, maps are divided into background and point.



In the ***background maps*** by hatching of different density or color of various degrees of saturation shows the intensity of any index within the territorial unit.

In ***point maps***, the level of a phenomenon is represented by points located within certain territorial units. A point represents one or more units of a population to be displayed on a geographic

map of the density or frequency of occurrence of a particular feature.

A map chart is a combination of a chart and a contour map (plan) of a terrain. Geometric symbols (columns, circles, squares, etc.) used in cartograms are placed throughout the map. They not only give an idea of the value of the studied indicator in different areas, but also depict the spatial distribution of the studied indicator.

CHAPTER 5
THE HEALTH OF THE POPULATION AND METHODS OF ITS STUDY

5.1. Public health, methods of its study and evaluation

Health is a state of complete physical, spiritual and social well-being, not merely the absence of disease and infirmity."

In medical and social research in the assessment of health it is advisable to allocate four levels:

- *first level* – personal health — individual health;
- *second level* – health of social and ethnic groups-group health;
- *third level* – health of the population of administrative territories — regional health;
- *fourth level* – the health of the population, society as a whole-public health.

Methods of medical and social research: 1) historical; 2) dynamic observation and description; 3) sanitary and statistical; 4) medical and sociological analysis; 5) expert assessments; 6) system analysis and modeling; 7) organizational experiment; 8) planning and normative, etc.

Individual health – the absence of identified disorders and diseases, and at the population level — the process of reducing mortality, morbidity and disability, as well as increasing the perceived level of health. Public health should be seen as a resource of national security, a means of enabling people to live a prosperous, productive and quality life.

A number of very conditional indicators are used to assess individual health: health resources, health potential and health balance. Health resources are morphological, functional and psychological abilities of the body to change the balance of health in a positive way. Improving health resources is ensured by all measures of a healthy lifestyle (food, exercise, etc.). Health potential is a set of abilities of an individual to respond adequately to the impact of external factors. Health balance-a pronounced state of balance between the potential of health and the factors acting on it.

Usually, depending on the presence of acute or chronic diseases and the degree of their compensation, 5 health groups are distinguished.

To quantify the group, regional and public health in our country it is traditionally accepted to use the following indicators:

1. Demographics.

2. Morbidity.

3. Disability.

4. Physical development.

Human health — the quality of social, in connection with which to assess public health recommends the following indicators: Allocation of gross national product on health care. Availability of primary health and social care. Health care coverage. The level of immunization of the population. The degree of examination of pregnant women by qualified personnel. Nutritional status of children. Child mortality rate. Life expectancy. Hygienic literacy of the population.

In the study of public health factors that determine it, it is common to combine the following groups:

1) social-economical factors (working conditions, housing conditions, material well-being, etc.);

2) social-biological factors (parents' age, gender, antenatal period, etc.);

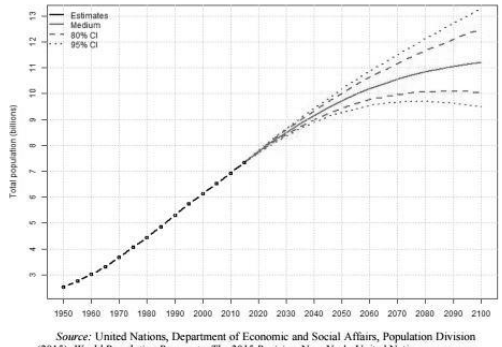
3) environmental and climatic factors (pollution, average annual temperature, solar radiation, etc.);

4) organizational or medical factors (level, quality and accessibility of medical and social care, etc.).

The use of epidemiological methods in different areas of health in large populations allows us to distinguish different components of epidemiology: clinical epidemiology, environmental epidemiology, epidemiology of non-communicable diseases, epidemiology of infectious diseases, pharmacoepidemology, etc.

5.2. Demographic situation in the world

Figure 2. Population of the world: estimates, 1950-2015, medium-variant projection and 80 and 95 per cent confidence intervals, 2015-2100



Source: United Nations, Department of Economic and Social Affairs, Population Division (2015). *World Population Prospects: The 2015 Revision*. New York: United Nations.

The Department of economic and social Affairs of the United Nations Secretariat presented an annual report on the world demographic situation and its development prospects. For a conscious person, it is important to know what the world will be like in 20, 30, 40 years. 10 most important facts from the UN report will help to understand.

By 2050, the world population could reach 10 billion people

In July 2015, the global population was 7.3 billion. In 2016, the number of inhabitants of the planet increased by 86 million people, and by 2030 can reach 8.5 billion high probability that By 2050 the world's population will be from 9.4 billion to 10 billion people.

The world average life expectancy is growing

From 2010 to 2015, the average life expectancy in the world increased from 67 to 70 years. In Africa, people live to about 60 years, in Asia-to 72, in Latin America-to 75, in Europe-to 77, in North America-to 79. Until 2100, the average life expectancy on the planet will grow to 83 years.

The rate of ageing of the world's population is growing

In 2015, 12% of the world's population was over 60 years of age. This figure is growing by 3.26% annually. In Europe, one in four people over 60 years of age. According to the forecast, by 2050 there will be 2.1 billion people over 60 years of age in the world, which is about 20% of the expected population.

The total fertility rate is decreasing in the world. It increases only in Europe

Although fertility is declining in Asia and Africa, it is still sufficient for natural population growth. Countries with low rates are those with 2.1 children or less per woman. This is the case in North America and Europe:

Region	**2005-2010**	**2010-2015**
	Number of children per woman	**Number of children per woman**
Africa	4,9	4,7
Asia	2,3	2,2
North America	2,0	1,86
Europe	1,55	1,6

Until 2100, on average, women in the world will give birth to no more than 2 children.

Increases the average age of the inhabitants of the planet

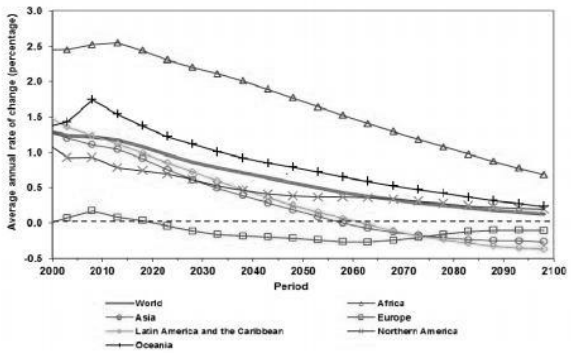
The increase in this indicator indicates the aging of mankind as a whole. In 2015, the average age of the planet's inhabitants was 30 years. But according to long – term forecasts, it will increase to 36 years by 2050 and to 42 years-to 2100. For example, in 2015 the average age of a European was 42 years, and by 2050 it is expected that a resident of Europe will "grow up" to 46 years.

Europe's population is declining

The European population is projected to decline by more than 15% by 2050. A decrease in the number of residents is expected in countries such as Ukraine, Bulgaria, Hungary, Croatia, Lithuania, Latvia and Serbia. In Europe, the total fertility rate will increase from 1.6 to 1.8 children per woman by 2050, but this will not change the trend of population decline. In Ukraine, the total fertility rate in 2015 was 1.5 children per woman, which is below the level required for natural movement in the long term (about 2.1 children per woman).

Africa is the fastest growing region in the world by population

Figure 3. Average annual rate of population change by major area, estimates, 2000-2015, and medium-variant projection, 2015-2100



Source: United Nations, Department of Economic and Social Affairs, Population Division (2015). *World Population Prospects: The 2015 Revision*. New York: United Nations.

In 2010-2015, Africa recorded the world's largest population growth rate – 2.55% annually. With such indicators, from 2015 to 2050, its population will increase by 1.3 billion people. This is a significant figure, if we take into account that the total population of the planet by 2050 will increase by 2.1-2.7 billion people.

India will overtake China in terms of population

As of 2015, China is considered to be the most populous country in the world, and its inhabitants make up 19% of the world's population. In China today there are 1.38 billion people. According to forecasts of the UN population division, their number will not change significantly by 2030, and in the next 20 years, even slightly reduced. In India, 1.31 billion people were registered in 2015, which is slightly less than 18% of the world's population. The growth rate of the number of its inhabitants suggests that in 2030 they will be 1.5 billion, and in 2050 – about 1.7 billion people.

In the next 35 years, the largest population growth is expected in poor countries

Between 2015 and 2050, 9 countries will account for half of the world's natural population growth: India, Nigeria, Pakistan, Democratic Republic of the Congo, Ethiopia, Indonesia, Uganda, United Republic of Tanzania. These are the countries with the highest birth rates. For example, Nigeria is projected to outnumber the population of the United States of America by 2050.

The number of men and women in the world is about the same

In 2015, there were 102 men per 100 women in the world. This study applies to all age groups. The countries with the highest number of men per 100 women are: UAE - 274, Qatar - 265, Bahrain -163. Least of all men per hundred women live in Lithuania and Latvia – 85. In Ukraine, for example, there are 86 men per 100 women.

5.3. Objectives of demographic statistics

The tasks of demographic statistics as a branch of socio-economic statistics in General are to determine the volume of the studied objects and phenomena, their structure, causal relationships in specific conditions of place and time.

Its first task is to determine the population. Often you need to know the population of individual continents and their parts, different countries, economic regions of countries, administrative areas.

This is not a simple arithmetic, and a special statistical account-the account of categories of the population (number of births, deaths, marriages, cases of termination of marriages, the absolute value of migration), that is, the determination of the population.

The second task is to establish the structure of the population and demographic processes. Attention is primarily drawn to the division of the population by sex, age, level of education, professional, production, social composition, belonging to urban and rural.

The structure of the population by sex can be characterized by an equal number of sexes, male or female superiority and the degree of this superiority. The world's population is composed of almost equal numbers of men and women, with a very small male margin. However, the sex structure of the population of certain regions varies greatly: from the predominance of men in Asian countries to the superiority of women in most European countries.

The structure of the population by age can be represented by annual data and age groups, the trend of changes in the age composition, for example, trends in rejuvenation or aging.

Professional structure shows the distribution of people acquired in the process of training professions, occupations; production-by sectors of the economy.

The study of the structure involves consideration of the territorial distribution of the population or its settlement. Here, first of all, distinguish the degree of urbanization, the density of the entire population and its state.

The third task is to study the relationships existing in the population between its different groups and to study the dependence of the processes occurring in the population on the factors of the environment in which these processes occur.

The fourth task is to study the dynamics of demographic processes. The characteristic of dynamics can be given as a change in population and as a measurement of the intensity of processes occurring in the population in time and space.

The fifth task is to forecast population and composition for the future.

The solution of the tasks facing demographic statistics is possible in the construction of generalizing statistical indicators and methods used in it. It helps to clarify the demographic situation in the world, individual countries and regions, helps to develop directions and ways to implement demographic policy to change the existing situation.

Demography is the science of population, the term comes from the Greek demos – "people" and grapho – "description". The task of demography is to study the territorial distribution of the population, trends and processes occurring in the life of the population in connection with socio-economic conditions, life, traditions, environmental, medical, legal and other factors.

Medical demography studies the relationship of population reproduction with social and hygienic factors and develops medical and social measures aimed at ensuring the most favorable development of demographic processes and improving the health of the population.

The statistical study of population is conducted in two main areas:

1) statics of the population;

2) population dynamics.

5.4. Statics of the population, the methodology for the study. Population census

Population statistics are data on population size, population composition by sex, age, social status, profession, marital status, cultural level, location and population density. The number and composition of the population is recorded by means of periodic population censuses every 10 years. Between censuses, the population is recorded by registering births and deaths, as well as by registering the population by place of residence.

The population censuses are characterized by the following features (requirements):

- universality;
- single program for the whole population;
- name – in further processing the data are depersonalized;
- direct receipt of information (self-determination of the Respondent, without presenting documents);
- personal survey of each resident by census takers;
- strict adherence to the confidentiality of the census;
- the census is conducted during the period of the least migration of the population (in winter, in the middle of the month, in the middle of the week);
- multiplicity: at least 1 time in 10 years (recommended by WHO).

In the production of the census there are two categories of population: cash and permanent.

Cash (or actual) refers to the population that is at the time of the census in a given locality, regardless of how long a person lives in it and whether he or she intends to stay there in the future.

A permanent population is a population that lives permanently in a given locality, regardless of whether it is available or temporarily absent at the time of the census. The permanent population is determined by adding temporary absences to the available population and excluding temporary arrivals at the time of the census.

In health care, to determine the indicators of fertility, mortality, morbidity and other should know the number of both permanent and available population. The indicator of spatial distribution of the population is the population density per 1 km2. This is an important factor in health planning.

The distribution of the population by sex and age is necessary to determine the prospects of population growth, reproduction of labor resources, analysis of data on morbidity and mortality.

From the socio-economic point of view, of great interest is the allocation of the population of the ***three main age groups*** (for participation in the labor process):

1) younger than the working age (0-15 years);

2) working age (men-16-59, women-16-54 years);

3) older than the working age (men – 60 years and older, women – 55 years and older).

However, in determining the type of age structure of the population, the proportion of persons aged 0 to 14 years, 15 to 49 years, 50 years and older is taken into account.

Progressive is the type of population in which the proportion of children aged 0-14 exceeds the proportion of the population aged 50 years and older.

Regressive type is considered to be the population in which the proportion of persons aged 50 years and older exceeds the proportion of the child population.

Stationary is a type in which the proportion of children is equal to the proportion of persons aged 50 years and older.

Progressive type of population provides a further increase in the population, the regressive type threatens the nation with extinction, with the stationary type of natural population growth is very slow or is at a stationary (constant) level.

Age 50 for most countries is the age of the working-age population, it is not always advisable to take it as a basis in determining the type of age composition of the population. Many scientists propose to determine the level of demographic "old age" of the population by the proportion of persons aged 60 years and older, depending on which there are stages (degree) of population aging on the scale of E. Rosset (the proportion of persons 60 years and older less than 8% – demographic youth, 8-10% – the threshold of old age, 10-12% – the actual old age, 12% and more – demographic old age).

In particular, in 2000, the Proportion of persons aged 60 and over was 18.4 per cent in the Republic of Belarus, which means that the country is characterized by a demographically old type of population.

Ageing problems:

- increase of morbidity rate in the country;

- increase of chronic and multiple pathology;
- increase in mortality;
- increased need for inpatient care;
- increased need for home maintenance;
- increased need to expand geriatric services.

Statics value for practical public health – indicators of statics of the population required to:

– calculation of indicators of natural population movement;
– calculation of indicators of public health;
– planning and organization of types of medical care to the population;
– definition of funds allocated from the state budget for health;
– organization of anti-epidemic work in the region;
– calculation of indicators characterizing the activities of health authorities and institutions, doctors;
– calculation of the population's need for medical personnel.

5.5. Population dynamics

Population dynamics is a change in the number of population. Population change can be influenced by mechanical movement (migration) and natural movement.

Mechanical movement of the population occurs as a result of migration processes, i.e. the movement of people associated, as a rule, with the change of residence.

Types of migration:

– *deadweight*, i.e. with the constant change of permanent residence;

– *temporary* – resettlement for a sufficiently long but limited period;

– *seasonal* – movement in certain periods of the year;

– *pendulum* – regular trips to the place of work or study outside their locality.

In addition, there is a distinction between ***external*** migration, i.e. migration outside the country, and ***internal*** migration within the country. External migration refers to ***emigration*** – the departure of citizens from their country to another for permanent residence or long – term, and ***immigration*** – the entry of citizens from another country in this. Urbanization is the process of increasing the role of cities in the development of society. Urbanization is characterized by the influx of rural population into the cities

and the increasing pendulum movement of the population from the surrounding villages and nearby small towns to large cities (to work, etc.).

The study of the mechanical movement of the population is also associated with the relocation or movement from village to city, from one area to another. This is internal migration. Internal migration is one of the most massive and important social processes of our time. Mechanical movement is important for the health of the country and the health organization. The methodological basis for the study of the mechanical movement of the population is the population census and the current registration of people in passport offices.

5.6. Methods of studying the natural movement of the population

The natural movement of the population is the change in population as a result of the interaction of fertility and mortality. Methods of their study are based on the mandatory registration of births (within a month), deaths (within 3 days), marriages and divorces in the registry office, with the Executive committees. The sources of the study of indicators of natural movement are the birth certificate, medical certificate of death (stillbirth).

Calculation of the birth rate and its levels:

$$Indicator\ fertilities = \frac{\text{Number of live births per year}}{\text{Average annual population}} * 1000$$

Low – below 15 ‰;

Average – 15-25 ‰;

High – 25-30 ‰;

Very high – more than 30 ‰.

The consequences of the decline in the birth rate of the population are a decrease in the proportion of children in the General population structure, an increase in the proportion of persons of older age groups, an increase in the economic burden on working age.

Natural population movement is characterized by fertility, mortality and natural growth. A more accurate description of the birth rate is obtained by calculating a special rate – the fertility rate (fertility). In calculating the total fertility rate, in contrast to the fertility rate, the denominator does not take the total population, but the number of women aged 15-49. This age interval is called generative, or fertile (fertile) period of the woman. In addition, the fertility rate is specified by the age-specific fertility rate.

That is, in addition to the total fertility rate are calculated as well:

- *a special birth rate (fertility)*, which is calculated by the age of 15-49 years; it is about 4 times higher than the birth rate;

The indicator of total fertility (fertility)(calculated to the age of 15-49 years)

$$= \frac{\text{Number of children born alive for a year}}{\text{The number of women of childbearing age (15–49 years)}} * 1000.$$

- age-specific fertility rates;

Age-specific fertility rate =

$$\frac{\text{Number of children born alive in women of the corresponding age}}{\text{Number of women of appropriate age}} *1000.$$

The coefficient of natural growth (or loss) of the population can be calculated as the difference between the birth and death rates.

The indicator of life expectancy at birth should be understood as the hypothetical number of years that a given generation will have to live at the same time or the number of peers of a certain age.

The level of fertility in the country is influenced by a number of factors: employment of women in public work, the ratio of women and men in the structure of the population, the economic situation in the country, the professional composition of the population.

There are factors that can be controlled by health organizations to increase fertility. Therefore, doctors play a role in the analysis of fertility. In particular, they can influence the solution of the following medical and social problems:

1. Physical development of young people.
2. Health of the girl, family, spouses, children.
3. Marital relations.
4. Abortions.
5. Infertility.
6. Complications in the previous childbirth.
7. Legislation for the protection of motherhood and childhood.

The current labour legislation establishes special rules that take into account the physiological characteristics of the body of women in our society. These standards provide increased protection of women's health.

Mortality rates from individual diseases and the structure of the causes of death are important in assessing the health of the population.

General indicators – the number of deaths per 1,000 inhabitants in the reporting year.

Special indicators:

a) mortality rate by disease – number of deaths by disease per 1,000 inhabitants;

b) mortality rate depending on sex (age, profession, etc.) – the number of persons of a certain sex (age, profession, etc.) per 1000 inhabitants of this group;

c) indicator of the structure of causes of death – the percentage of deaths from certain diseases to the total number of deaths.

Calculation of total mortality and its levels:

$$Indicator\ mortality = \frac{\text{Number of deaths per year}}{\text{Average annual population}} * 1000$$

The low level of 8-9 deaths per 1000 population;

The average is 9-15 ‰;

High – above 15 ‰.

The level of general mortality is influenced by a number of circumstances and factors: environmental conditions, lifestyle, quality of medical care, age and sex composition of the population.

Indicators characterizing the mortality of the child population:

1. Infant mortality is the indicator of the frequency of deaths of children in the first year of life. It can be calculated in three ways:

a) Infant (child) mortality =

$$\frac{\text{Number of children who died on the 1st year of life}}{\text{Number of children born alive during the year}} * 1000;$$

b) Infant (child) mortality =

$$\frac{\text{Number of children who died on the 1st year of life}}{\frac{2}{3}\text{ of the children born alive for the year of calculation} + \frac{1}{3}\text{ of the children born in the previous year}} * 1000;$$

c) Infant (child) mortality =

$$\frac{\text{Number of children who died on the 1st year of life}}{\frac{4}{5}\text{ of the children born alive for the year of calculation} + \frac{1}{5}\text{ of the children born in the previous year}} * 1000.$$

2. Mortality rate of newborns (neonatal mortality) =

$$\frac{\text{Number of children who died at 1 month of life (0–27 days)}}{\text{Number of children born alive during the year}} * 1000.$$

3. Indicator of early neonatal mortality =

$$\frac{\text{Number of children who died at 1 week of life (0–6 days}}{\text{Number of children born alive during the year}} * 1000.$$

4. Indicator of late neonatal mortality =

$$\frac{\text{Number of children who died at 1 month of life (7–27 days)}}{\text{Number of children born alive – dead (0–6 days)}} * 1000.$$

5. Index post-neonatal mortality rate =

$$\frac{\text{Number of children who died from 28 to 364 days}}{\text{Number of children born alive – dead (0–27 days)}} * 1000.$$

6. Rate of perinatal mortality =

$$\frac{\text{Number of stillborn + number of dead children at the 1st week of life (0–6 days)}}{\text{Number of children born alive and dead in a year}} * 1000.$$

In addition to general mortality rates, age-specific mortality rates are also calculated, as well as by sex, occupation and other characteristics; average age of the deceased; mortality rates for individual causes; the structure of mortality by causes.

The cause of death must be included in the "Medical certificate of death (“stillbirth”). The causes of death are all those diseases, pathological conditions or injuries that caused or contributed to the death, as well as the circumstances of the accident or act of violence.

Men are more careless than women. Mortality among them is more than 4 times higher than among women.

Natural population growth – the ratio between fertility and mortality. Pokrovsky index is an indicator of vitality.

Natural growth is calculated in two ways:

1.Natural population growth =

$$\frac{\text{Difference in the number of births and deaths in the reporting year}}{\text{Average annual population}} * 1000$$

2.Natural population growth = Birth rate for the reporting year – Mortality rate for the reporting year.

The Republic of Belarus is characterized by natural population decline.

Important is the family-a set of living together, related and common budget.

The family status of the population is characterized by the following indicators:

- marriage rate – the ratio of marriages per year to the average annual population;
- the ratio of divorces is calculated similarly to;
- average length of marriage.

The processes of population reproduction are characterized by the following indicators:

1. ***Total fertility is the number of births (children) per woman per fertile age*** (approximately 3).

$TFR = \sum ASFR_a$*(for single year age groups);*

$TFR = 5 \sum ASFR_a$*(for 5-year age groups).*

Where: $ASFR_a$ = age-specific fertility rate for women in age group a (expressed as a rate per woman).

2. Gross ratio is the average number of girls per woman (approximately 1.5).

3. Net ratio – the average number of girls in a woman, taking into account the probability of her death. The net (net) ratio is the estimated number of girls born again per 1,000 women, taking into account those who die without children, i.e. not all girls survive to the fertile period. Mortality by age is taken into account (approximately 1.3).

For the normal reproduction of future generations it is necessary to have 260 children per 100 families.

5.7. Morbidity of the population, its types and methods of study

Disease – any subjective or objective deviation from the normal physiological state of the body. The concept of "disease"is broader than the concept of "disease".

Morbidity is a comprehensive indicator of the structure and quality of diseases, which shows the level and frequency of the spread of all diseases, taken together and each individually among the population as a whole and in its individual age, social, sexual and other groups.

The incidence of study on indicators:

1) Actual incidence is revealed for the first time this year, there had not previously considered.

2) Morbidity (prevalence) – the totality and frequency of all existing diseases, first identified in a given year and registered in previous years, about which patients again turned in the current year.

3) Pathological lesions – the frequency of diseases, which is established on medical examinations. Taken into account and functional and morphological disorders that can lead to disease, etc.

Classification of morbidity:

The uniformity of diagnosis and registration of all known forms of disease is achieved through the International classification of diseases 10 revision, in which all diseases are divided into ***21 classes***:

1. Infectious / parasitic diseases.
2. Neoplasms.
3. Diseases of the endocrine system, immune system and metabolism.
4. Diseases of the blood and blood-forming organs.
5. Mental disorder.
6. Diseases of the nervous system and sensory organs.
7. Diseases of the circulatory system.
8. Diseases of the respiratory system.
9. Diseases of the digestive system.
10. Diseases of the genitourinary system.
11. Complications of pregnancy, childbirth, postpartum period.
12. Diseases of the musculoskeletal system and connective tissue.
13. Congenital anomalies and malformations.
14. Individual States of the perinatal period.
15. Skin disease.

16. Symptoms and ill-defined conditions.
17. Injury, poisoning.
18. Diseases of the eye and adnexa.
19. Diseases of the ear and mastoid process.
20. External causes of morbidity and mortality.
21. The factors influencing the health status of the population.

All classes are divided into groups:

1. epidemic disease;
2. constitutional and general diseases;
3. local diseases (anatomical localization);
4. developmental diseases;
5. injuries.

There are 5 types of information about the morbidity of the population:

1. General morbidity – the level of diseases among the population groups for a certain period.
2. Incidence of infectious diseases. The records are kept by counting each disease if suspected
3. The incidence of major non-epidemic diseases. These are tuberculosis, venereal diseases, tumors, fungal and others, first registered in this year. The account of diseases is conducted in a clinic.
4. Diseases with temporary disability.
5. In-hospital morbidity.

5.8. Types of morbidity

1. a) Morbidity according to data on appeal in the health organizations;

b) Morbidity according to medical examinations;

c) Morbidity by cause of death.

2. By population:

a) occupational morbidity;

b) morbidity with temporary disability;

c) morbidity of pregnant women;

d) the incidence of childbirth and postpartum;

e) the incidence of children attending kindergarten;

f) the incidence of students;

g) morbidity of military personnel, etc.

3. By age:

a) morbidity of children (newborns, preschoolers, schoolchildren);

b) the incidence of adolescent;

c) adult morbidity.

4. Classes, disease groups, nosological forms:

a) infectious morbidity;

b) incidence of major socially significant and dangerous diseases;

c) cancer incidence;

d) injuries, etc.

5. By sex:

a) the incidence of women;

b) the incidence of men.

6. At the place of registration:

a) outpatient clinics

b) hospitalized

Cases of any of the types of incidence are recorded in a special document: log of calls; out-patient records, medical history, etc.

Statistical types of morbidity:

1. ***Total*** (turnover, medical examinations, causes of death) – calculated: the primary incidence, prevalence, frequency by age group, duration, severity of the disease.

Medical examination:

1.preliminary – for admission to work, study;

2. periodic – detection of early signs of occupational diseases in the workplace;

3. target – detection of specific diseases;

2. ***Infectious***.

Groups:

- quarantine-plague, cholera, smallpox, etc.;

- the most important non-epidemic-syphilis, tuberculosis, fungal diseases;

- non-epidemic-influenza, ARVI;

- epidemic-typhoid fever, salmonellosis, dysentery.

Information about all infectious diseases should be reported to the Centre of hygiene, epidemiology and public health. For each group of this type of disease has its own documentation and a set of measures to combat them.

4. ***Hospitalized*** – the characteristic of serious pathology, the account-the card of the left hospital, indicators: frequency of hospitalizations, average duration of treatment, seasonality of hospitalization

5. ***With temporary disability*** – applies to the working population. Accounting – on sick leave and coupons outpatient. Indicators: number of cases, number of days with temporary disability, average duration of one case.

6. ***The most important diseases*** are cardiovascular diseases, malignant neoplasms, traumas, mental disorders.

5.9. Methods of studying morbidity

To characterize the morbidity of the population there are three concepts:

Actually (primary) morbidity – a set of new, previously unaccounted for and for the first time this year identified among the population, diseases.

Morbidity (prevalence of diseases) – is a set of all existing diseases among the population, first identified in a given year and registered in previous years, about which patients again turned in a given year. Both the first and the second indicator count on 10,000 people.

The term "pathological lesion" is used to determine the frequency of pathology among the population, which is established during medical examinations, taking into account not only the disease, but also the forms, morphological and functional conditions that can further cause the disease.

The total incidence is a set of diseases (acute and chronic) among certain groups of the population for a certain calendar year. The study of the General morbidity is carried out according to outpatient clinics. The data of General morbidity of the necessary for full health characteristics of the population.

The unit of follow-up is the patient's initial contact with the doctor about a particular disease in a given calendar year. The main accounting document is "the Statistical coupon for registration of the final (specified) diagnoses".

"The statistical coupon" is filled in for each case of acute disease (with the sign "+"), for each case for the first time in life of the revealed chronic disease (with the sign "+"), and also at the first address in the current calendar year concerning earlier revealed chronic disease (with the sign "–").

Chronic diseases are taken into account only once a year, exacerbations of chronic diseases this year are not taken into account again as diseases. On the basis of the development of data on "Statistical coupons" is filled in "Report on the incidence".

In the study of the primary morbidity of the population, according to the data of the turnover, "Statistical coupons" filled only for the first detected diseases (with the "+"sign) are taken into account.

When studying the prevalence of diseases according to the data of circulation, all statistical coupons filled out during the year are taken into account, both in cases of first established diagnoses with the " +"sign, and passed from previous years with the "–"sign.

In the analysis of the General morbidity it is accepted to calculate the following indicators:

Primary morbidity:

$$\frac{\text{number of diseases first detected in a year}}{\text{average annual population}} * 1000 \text{ (10 000, 100 000).}$$

General morbidity:

$$\frac{\text{number of diseases detected for the first time in a year and reregistered since previous years}}{\text{average annual population}} * 1000 \text{ (10 000, 100 000).}$$

Overall morbidity rates give only a general idea of the level of morbidity. More accurately characterize the overall incidence of special indicators (age and sex, diagnoses, profession, etc.).

Age and sex morbidity:

$$\frac{\text{number of diseases detected per year in persons of this sex and age}}{\text{average annual population of this sex and age}} * 1000 \text{ (10 000, 100 000).}$$

The total morbidity the diagnosis:

$$\frac{\text{the number of diseases with diagnosis,identified during the year}}{\text{midyear population}} * 1000 \text{ (10 000, 100 000).}$$

Similarly special are calculated prevalence by sex, age, diagnosis and other.

To assess the severity of the disease allow the following indicators:

The structure of the overall morbidity (the proportion of certain diseases in the overall morbidity):

$$\frac{\text{number of diseases diagnosed during the year}}{\text{total number of diseases}} * 1000.$$

Death rate:

$$\frac{\text{number of deaths from the disease per year}}{\text{average annual population}} * 1000 \text{ (10 000, 100 000).}$$

The case-fatality rate:

$$\frac{\text{number of deaths from the disease per year}}{\text{number of patients with the disease}} * 1000.$$

Mortality and mortality rates can also be calculated by sex, age, occupation, etc.

In the analysis of morbidity according to the incidence should be remembered that it depends on the appeal of the population for medical care. Access to medical care, medical activity of the population, material well-being, qualification of doctors and other factors, in turn, have an impact on the turnover.

5.10. Framework for the study of disease

1) Marketability:

a) Overall morbidity (medical card of an ambulatory patient, a piece of accounting, a coupon of ambulatory patient);

b) With TD (coupon for finished case with TD);

c) A hospital or hospital rehabilitation (map retired from hospital);

d) The Disease of acute infectious diseases (EMERGENCY notification of the first detected infectious disease);

e) The morbidity of major non-epidemic diseases(a notice of the sick with the diagnosis registered for the first time with tuberculosis in an active form).

2) Method of medical examinations:

a) Preliminary;

b) Periodic;

c) Target (Medical card of the out-patient; card of the person subject to periodic medical examination; List of persons subject to periodic medical examination).

3) Method for causes of death (Medical certificate of death; medical certificate of perinatal death);

4) Sample study or socio-hygiene logical study (free-form Document).

Methods of studying the incidence can be combined into 2 large groups.

1. The study of morbidity on the basis of a continuous method of studying the health of all those who applied to medical institutions with diseases and health problems and the approved rules of the State statistics Committee:

* according to the population's appeal to medical institutions;

* cause of death data;

* data on the causes of disability.

2. The study of morbidity according to sample studies of individual groups and populations.

The method of treatment is characterized by taking into account all the primary cases of diseases, as well as primary appeals to the clinic of patients with chronic diseases. In this regard, it gives the most complete identification of acute diseases (*visit* – every visit to the doctor; *admission* – the first visit about the disease.).

The study of morbidity by causes of death gives the opportunity of a comprehensive survey of all deaths with an indication of the diagnoses and sex, age, place of residence of the deceased.

The study of morbidity according to medical examinations contributes to the active and most complete detection of chronic diseases and pathological conditions in the initial stage. However, it should be borne in mind that pathological conditions and diseases are detected only at the time

of the examination, which makes it difficult to compare the incidence data in the dynamics.

In addition to these methods, the method of studying morbidity according to the population survey is currently used. Its positive characteristic is that the method:

* allows you to detect the disease with which the population was not addressed in treatment-and-prophylactic institutions,

* complements and expands information on morbidity. The disadvantages of the method include the following:

* the method is economically expensive,

* detection of diseases depends on the level of sanitary culture of the population and the possibility of obtaining information about their health, which often forms a subjective assessment of health,

* limited use for some contingents (health workers, teachers, teachers, etc.)

If it is necessary to study the morbidity of hospitalized employees of the Academy data are taken in the archive (document – card retired from the hospital).

If you need to study the incidence of temporary disability should take a sheet of disability which is stored in the accounting Department.

To study the General morbidity, a medical record and stat are statistical coupon.

To study the incidence of tuberculosis with syphilis gonorrhea, a document on the most important non-epidemic disease is taken.

Each type of morbidity has an accounting and reporting form. Infectious morbidity ,hospital morbidity, the most important morbidity, non-epidemic morbidity, morbidity with temporary disability are components of the General morbidity. The study of only one of these species is only part of the General morbidity.

Morbidity with temporary disability

The unit of observation is each case of temporary disability.

The registration document-the leaf of disability (has not only medical and statistical, but also legal financial value).

Recalculation on 100 working.

Main indicators:

1. Number of incapacity cases for work per 100 employees:

$$\frac{Number\ of\ all\ cases\ of\ disability}{Average\ number\ of\ employees} * 100.$$

2. Number of days of incapacity for work per 100 employees:

$$\frac{Number\ of\ all\ days\ of\ incapacity\ for\ work}{Average\ number\ of\ employees} * 100.$$

3. The average duration of one case of incapacity:

$$\frac{Number\ of\ days\ of\ incapacity\ for\ work}{Number\ of\ cases\ of\ incapacity\ for\ work}.$$

4. Structure of morbidity with temporary disability in days:

$$\frac{Number\ of\ days\ of\ disability\ for\ the\ disease}{Total\ number\ of\ days\ of\ disability} * 100.$$

5. The structure of morbidity with temporary disability in cases of:

$$\frac{Number\ of\ cases\ of\ disability\ for\ the\ disease}{Total\ number\ of\ cases\ of\ disability} * 100.$$

The first three indicators are calculated as a whole for all diseases, and separately for each disease. The number of cases of incapacity to work per 100 workers indicates the level of morbidity of workers. The number of days of disability per 100 employees depends on many factors affecting the duration of disability, and characterizes the severity of the disease.

Requirements for separate study of these types of morbidity due to certain reasons:

1. Incidence of infectious disease – requires a quick implementation of anti-epidemic measures;

2. In-hospital morbidity – data are used for planning hospital beds;

3. Morbidity with temporary disability – determines the economic costs.

5.11. Disability

Disability is a condition in which a person, due to his or her physical or mental condition, loses the ability to perform normal functions.

Disability can be ***physical*** (e.g., paralysis, limb loss, deafness), ***mental*** (e.g., depression or post-traumatic stress) and ***intellectual*** (e.g.,

learning disabilities). Some people are already born with some disorders, others become disabled as a result of an accident or illness. There are various degrees of disability, ranging from moderate to severe, from temporary to permanent. Persons with disabilities can be improved if they live in a community that supports them and if they have good educational and employment opportunities.

Disability is not just a health problem. This is a complex phenomenon, reflecting the interaction between the characteristics of the human body and the characteristics of the society in which this person lives. In order to overcome the difficulties faced by persons with disabilities, measures are needed to remove environmental and social barriers.

People with disabilities have the same medical needs as people without disabilities, such as immunization, cancer screening and others. Their health may be more vulnerable due to poverty and social exclusion, as well as a higher risk of developing secondary conditions such as bedsores or urinary tract infections. Evidence shows that, in many places, persons with disabilities face obstacles in accessing the health and rehabilitation services they need.

The first world report on disability was officially presented on June 9, 2011 in new York, USA. It collects the best available scientific data on disability and provides recommendations for the implementation of the Convention on the rights of persons with disabilities.

Some statistics:

** According to who, there are 750 million people with disabilities worldwide.*

** 80% of persons with disabilities live in developing countries.*

** 10% of the population in poor countries are disabled.*

** One in ten children in the world lives with disabilities.*

** In poor countries, only 2-3% of children with disabilities go to school.*

These data are largely underestimated because the majority of persons with disabilities live in conditions of exclusion, exclusion and rejection and are therefore often not included in censuses. Families hide children with disabilities, preventing them from participating in family or public life.

In Uganda, the likelihood is that the disabled person will be poor, 40% higher compared to ordinary people. Children living in families with disabled members have far fewer opportunities to attend school.

In Serbia, the proportion of the poor among persons with disabilities is 70%.

In Honduras, 51 per cent of the disabled are illiterate, compared to 19% of the illiterate population. Only 31.5% of persons with disabilities are employed, compared to 50.8% of ordinary people.

Disability is a problem that concerns not only health. Understanding who is disabled is determined by people's culture. For example, if a deaf child is able to read lips and lives with people who speak sign language, he or she may not be considered a disabled person and may be considered a person participating in society.

Persons with disabilities need to be helped to become productive members of society, as this will enhance the well-being and well-being of the entire community. Sometimes the solutions are quite simple: providing children with reading glasses, providing wheelchairs to those who need them, or building buildings with wheelchair ramps.

5.12. Criteria for establishing disability groups

In determining the group of disability members of the medical and social Commission are guided by a number of criteria. Below are the criteria for the degree of their violation for each of the groups of disability.

First group of disability

The basis for the establishment of the first group of disability are persistent, significantly expressed severity of functional disorders in the body due to disease, injury or birth defect, which lead to a significant restriction of human life, the possibility of self-care and cause the need for constant outside supervision, care or assistance.

The First group includes persons with the most severe health disorders who are completely unable to self-service, need full constant external care, assistance or supervision, completely dependent on other persons or who are partially capable of performing certain elements of self-service, need constant external care, assistance or supervision, dependent on other persons in providing vital social and household functions.

The criteria for the establishment of the Ist group of disability is the restriction of one or more categories of life to a large extent:

- limitation of self-service III art.;
- limitation of the ability to move independently III art.;
- limiting the ability to learn article III.;
- restriction of ability to labour activity III.;
- limitation of the ability to orient III art.;

- limitation of the ability to communicate III art.;
- limiting the ability to control their behavior III art.

Second group of disability

The basis for the establishment of the second group of disability are persistent, severe functional disorders in the body due to disease, injury or birth defect, which lead to a significant restriction of human life, with the preserved ability to self-service, and do not cause the need for constant supervision, care or assistance.

The criteria for the establishment of the IInd group of disability is the restriction of one or more categories of life to a pronounced extent:

- limitation of self-service II art.;
- limitation of the ability to move independently II art.;
- limitation of the ability to learn article II.;
- limitation of the ability to work II art.;
- limitation of the ability to Orient II art.;
- limitation of the ability to communicate II art.;
- limiting the ability to control their behavior II art.

The second group of disability may also include persons who have two or more diseases that have led to disability, the consequences of injury or birth defects and their combinations, which together with functional disorders lead to a significant restriction of human life and ability to work.

The second group is determined by the disabled since childhood (pupils, students of educational institutions of I-IV levels of accreditation) in the presence of signs of disability for the period of training; upon completion of educational institution the certificate on their suitability to work as a result of acquisition of a profession is provided.

Disabled persons of the II group can work in specially created conditions: in special workshops for disabled people, where the organization of a special work regime (reduction of working hours, individual working standards, additional breaks in work, strict observance of sanitary and hygienic standards, medical supervision and systematic medical care, etc.) is provided, at specially created workplaces, in home conditions with an individual work regime without mandatory production standards, with delivery of raw materials to home and acceptance of finished products.

Disabled persons of group II can perform non-contraindicated types of work, including highly qualified, in any institutions and enterprises of different forms of ownership, where the administration provides special

conditions (for example, irregular working hours, a small amount of work, necessary breaks in work, diet, separate rooms, etc.).

Third group of disability

The basis for the establishment of the third group of disability are persistent, moderate functional disorders in the body due to the disease, the consequences of injuries or birth defects, which led to a moderate restriction of life, including health, who need social assistance and social protection.

The criteria for the establishment of group IIIrd disability is the restriction of one or more categories of life to a moderate degree:

- the limitation of the self and art.;
- limitation of the ability to move independently I art.;
- limiting the ability To learn I art.;
- limitation of the ability to work I art.;
- limitation of the ability to Orient I art.;
- limitation of the ability to communicate I art.;
- limitation of the ability to control their behavior and art.

Moderate restriction of life activity is determined by the partial loss of opportunities for full-time work; a significant reduction (more than 25%) in the volume of work; loss of a profession or a significant reduction in skills; a significant difficulty in acquiring a profession or in finding employment from persons who have never worked and do not have a profession.

Prevention of disability

In addition to providing assistance to persons with disabilities, international organizations such as UNICEF, who and the world Bank are working to prevent disability, namely:

- improve health care in poor countries so that pregnant women and children receive adequate health care.
- create conditions for children with disabilities to go to school and learn to earn a living.
- demining of fields is carried out so that people can’t step on a mine.

The world Bank supported the establishment of a Global partnership for disability and development, an organization that coordinates the actions of donor countries, development agencies, non-governmental organizations and recipient governments.

5.13. Physical development of personality as an indicator of health

Physical development – the process of change, as well as a set of morphological and functional properties of the body. Physical development of a person is determined by ***biological factors*** (heredity, relationship of functional and structural, gradual quantitative and qualitative changes in the body, etc.) and ***social*** (material and cultural level of life, distribution and use of material and spiritual benefits, education, work, life, etc.). As a set of features that characterize the state of the body at different age stages, the level of physical development (along with fertility, morbidity, mortality) is one of the most important indicators of social health. The main means of directed influence on physical development are physical exercises. In modern society, the comprehensive physical development of population groups, the achievement of physical perfection – the social purpose of physical education, program and normative basis of which are national programs.

Of course, physical development is influenced by many factors, but about half of these factors are able to change everything – it's a way of life, sports activity, proper sleep and nutrition, proper food.

Physical development is the process of changing the forms and functions of the human body under the influence of living conditions and education.

There are three levels of physical development – high, medium and low, and two intermediate – above average and below average.

In the narrow sense of the word, physical development is understood as anthropometric indicators (height, weight, chest volume, foot size, etc.).

The level of physical development is determined in comparison with the normative tables.

Physical development is characterized by changes in three groups of indicators:

**** Indicators of physique*** (body length, body weight, posture, volume and shape of individual parts of the body, the amount of fat, etc.), which characterize primarily the biological forms or morphology of man.

**** Indicators (criteria) of health, reflecting the morphological and functional changes in the physiological systems of the human body***. Crucial to human health is the functioning of the cardiovascular, respiratory and Central nervous systems, digestive organs and secretions, thermoregulation mechanisms, etc.

**** Indicators of physical qualities*** (strength, speed, endurance, etc.).

Physical development is to a certain extent determined by the laws of heredity, which should be taken into account as factors that favor or, conversely, impede the physical improvement of a person. Heredity, in particular, should be taken into account when predicting the capabilities and success of a person in sports.

The process of physical development is also subject to the law of age gradation. To interfere in the process of physical development of a person in order to control it is possible only on the basis of taking into account the features and capabilities of the human body in different age periods: in the period of formation and growth, in the period of the highest development of its forms and functions, in the period of aging.

Under physical development refers to a complex of morphological and functional properties of the body, characterizing the size, shape, structural and mechanical qualities and harmony of the human body, as well as the stock of his physical strength.

Monitoring of the physical development of the population in Russia is a mandatory part of the state system of medical control of the state of health. It is systematic and applies to different age and sex groups.

There are differences in the physical development of the population living in different economic and geographical zones, people of different nationalities. Under the influence of long-term adverse factors, the level of physical development is reduced and, conversely, the improvement of conditions, normalization of lifestyle contribute to the increase of physical development.

The foundations of physical development are laid in childhood, so the indicators that characterize it are mandatory in assessing the health of the younger generation. Physical development is usually studied in newborns, children of different age groups and adolescents, as well as in the adult population to characterize generations of different years of birth.

Thus, physical development is an integral indicator of health, which is influenced by a variety of external and internal factors. In this regard, the ***main objectives of the study of physical development of the population*** are:

- monitoring the level and changes in the physical development of different population groups;
- in-depth study of age and sex patterns of physical development in connection with the peculiarities of living conditions, work and life, the nature and forms of health care, sports;
- development of age and sex assessment norms-standards of physical development of the population for different ethnic groups in different climatic zones and economic areas;

– evaluation of the effectiveness of health measures.

5.14. Comprehensive assessment of population health

Traditionally, a ***comprehensive assessment of population health*** is understood as a set of quantitative indicators characterizing demographic processes, morbidity, physical development and disability.

The methodological technique used in the assessment of the health status of the population is the use of various sources of information developed in the framework of statistical reporting.

The main problem is the choice of a single indicator that would adequately reflect the various aspects of such a multifaceted phenomenon as health. Currently, methods of quantitative assessment of health in General have not yet been developed, it is judged only by its individual characteristics. These include data on life expectancy, mortality, morbidity, physical development of the population, etc.

Life expectancy is an integral indicator, to a certain extent showing the generalized state of health of people, depending on the impact of many factors.

The methodology for calculating life expectancy includes the number of people living and dying at certain intervals. The number of people living is determined by the birth rate, and the number of deaths is reflected in the mortality rate.

Realizing the impossibility of reducing such a complex concept as the health of the population to an unambiguous quantitative characteristic, however, the mortality rate is considered the most reliable indicator, which reflects the complex interaction of factors (biomedical, socio-economic, demographic, etc.) that have a direct and indirect impact on the health of the population. On the other hand, the prevention of premature death is one of the major health challenges with the necessary resources. Influencing their activity to the mortality of the population, the health system has an impact on life expectancy, i.e. the health status of the population. Mortality rates are more accurate and reliable than morbidity data.

The main source of information characterizing the morbidity is the data on the appeal to the medical and preventive organizations. The main drawback of the data on the incidence is that they do not give a complete picture of the true incidence: firstly, a number of diseases are not accompanied by calls for medical care (this applies especially to many chronic diseases); secondly, the level of incidence depends on a number of

factors unrelated to the incidence; finally, the focus on the number of applications allows us to take into account only the quantitative side of the disease, ignoring its qualitative aspects, primarily differences in the severity of diseases.

Under physical development understand the set of morphological and functional characteristics of the body, allowing to get ahead of the stock of his physical strength, endurance and performance. Assessment of physical development is carried out during medical examinations, during medical admission. Dynamic monitoring of physical development of children and teenagers allows to trace tendencies of formation of an organism, their compliance to standards of physical development. Physical development is determined by somatoscope, anthropometry and-old functional status. Data of physical development are subjected to statistical processing with the compilation of variation series, the calculation of average values, standard deviations, etc. the comparison of the data with a special table of physical development (standards), which allows to assess compliance with the norm and the deviation from the standard.

Disability of the population. Primary disability rate is the ratio of the number of persons first recognized as disabled to the average annual population, expressed as a percentage. According to who, currently in the world, persons with disabilities make up approximately 10% of the population, the majority of whom are elderly people. Depending on the criteria of disability, there are significant differences in different countries: in the US – 19%, the Russian Federation – 6%, China – 5%, Kazakhstan – 3%. The main disabling pathology of the adult population are diseases of the circulatory system, in second place – malignant neoplasms, in the third – trauma.

The problem of a comprehensive assessment of the population health status has not yet been solved. Integrated indicators are known in international and domestic practice:

- ***HDI (human development index)*** is an integral indicator consisting of three main components reflecting the average life expectancy, education and standard of living;
- ***DALY (disability-adjusted life years)*** – used to measure the global burden of disease by quantifying the integral health assessment (number of years of life adjusted for disability);
- ***QALY (quality of life outcome/endpoint)*** – an index that reflects the quality of years lived;
- ***DALE (disability adjusted life expectancy)*** – life expectancy, lived in full health;
- ***HALE (healthy life expectancy)*** – the duration of a healthy life;

- ***lost years of potential life*** – an indicator that allows you to determine the number of years of life lost due to premature death;
- ***medical and social potential of working capacity*** – the percentage of the number of years of future employment of the population to the maximum possible number of years of work, if it is not limited to diseases and injuries;
- ***indicator of medical and demographic well-being*** is an index calculated by the method of rank assessment, which allowed to compare homogeneous medical and demographic indicators.

In search of universal criteria for integral health assessment, researchers (doctors, psychologists, sociologists, etc.) are increasingly turning to the quality of life. Moreover, in modern conditions, the assessment and achievement of quality of life acquires political significance, which is actualized by the dynamism of socio-economic reforms.

The concepts of quality of life have a direct impact on the formation of national social policy objectives, i.e. their use as instruments of governance of state structures. Their use is necessary in order to improve the living conditions of the population on the basis of the developed programs. The parameters of the state of health of the population are organically included in the overall structure of indicators of quality of life.

The national standard of quality of life is an integrated indicator that reflects the degree of satisfaction of material, spiritual, intellectual, cultural, aesthetic and other human needs.

A large set of factors taken into account in the quality of life studies makes it difficult to establish any standards (standards) for each factor individually and, especially, integrated indicators (indices) for the whole complex of these factors. One approach to this task may be to group these factors on different grounds. For example, the qualitative level of people's needs: primary (providing needs for food, housing, clothing, transportation, health, procreation and social relations) and secondary (related to the satisfaction of spiritual, moral, aesthetic needs).

If a number of factors (food, housing, income, etc.) can be used scientifically developed standards or average indicators of traditional statistics, the factors of satisfaction with certain aspects of their lives need to conduct sociological research to establish the average values of subjective, evaluative characteristics for certain groups of respondents.

In contrast to this model, which is based primarily on the data of social statistics, researchers, dissatisfied with the use of only indicators of the objective state of phenomena, the concept of ***"perceived quality of life" (perceived quality of life)***. The essence of this concept is that the quality of life can’t be measured only with the help of objective parameters of various

aspects of human life and society. A necessary component of the quality of life is the subjective feeling, the individual's assessment of their living conditions and himself.

CHAPTER 6
THE ORGANIZATION OF THE OUT-PATIENT-POLYCLINIC HELP TO THE ADULT POPULATION

6.1. The nomenclature of the out-patient-polyclinic organizations of health care

According to the order of the Ministry of Health of the Republic of Belarus No. 35 of September 28, 2005, “On Approving the Nomenclature health organizations” the outpatient polyclinic health care organizations include:

- ambulatory;
- polyclinic;
- dispensary;
- center;
- medical rehabilitation expert commission;
- military medical commission;
- medical sanitary unit.

Ambulatory (from the Latin *ambulare* - to walk) - a medical institution that provides care for patients at the reception and at home, but does not have in its composition beds. In contrast to the polyclinic, the ambulatory provides services only in the main areas, such as therapy, surgery, dentistry (sometimes in pediatrics, obstetrics and gynecology).

In the Republic of Belarus, ambulatory clinics operate mainly in rural area (rural medical ambulance station, ambulatory of general practitioner).

Polyclinic (from ancient Greek πόλι - many, and ancient Greek κλινικ - healing) - a multidisciplinary or specialized medical institution for the provision of outpatient medical care to patients at the reception and at home.

Dispensary (from the Latin dispenso "distribute") - a special treatment-and-prophylactic medical institution that provides medical care to certain groups of the population and systematically monitors their health. This clinics carry out the identification of patients in the early stages of the disease by systematically organized mass preventive and targeted surveys of the population; registration of people in need of treatment; thorough examination and provision of qualified and special medical assistance to them; active dynamic observation (patronage) of the state of them health; a detailed study of the working conditions of the patients and, together with the sanitary-epidemiological stations, the elimination of factors that adversely affect the health of those taken for the clinical examination.

Medical center is a medical institution, which is distinguished by a high professional level, and where, in addition to consultations with narrow specialists and ambulatory reception, inpatient treatment is also carried out, at which the patient is under constant supervision of specialists.

Medical Rehabilitation Expert Commission is a public health institution that carries out:

- examination of citizens in order to conduct an inspection of the disability (hereinafter medical and social expertise) in the manner and time established by the Ministry of Health;
- determination of specific volumes, types and terms of rehabilitation activities for citizens who have undergone medical and social expertise, in cases provided for by the legislation;
- accounting and analysis of the structure of disability.

Military medical commission is a body of military-medical examination, designed for medical examination of military personnel and other contingents of the population in order to determine the degree of their fitness for military service.

Medical sanitary unit (MSU) is a medical institution intended to provide medical care exclusively or mainly to industry, construction and transport workers. In the MSU specialized outpatient polyclinic, and in the presence of a hospital inpatient care is provided to the workers of the enterprise and the attached population; carry out preventive examinations, carry out medical examination of workers at the enterprise and the necessary health measures.

6.2. Primary medical aid. Organization of medical care provided to the population on an outpatient basis

Primary medical aid is the first level of rendering of medical aid. At this level the first contact of patients to public health services system is carried out.

Primary medical aid is the main type of medical care if the patient has the most common diseases, during pregnancy and childbirth, during diagnosis and medical prevention.

The main volume of primary medical care is provided to the population in the conditions of outpatient organizations.

Outpatient polyclinic care in the Republic of Belarus is provided by the *following institutions:*

1) outpatient clinics that are part of hospitals,

2) independent city polyclinics,

3) rural outpatient clinics,

4) dispensaries,

5) female consultations,

6) health centers,

7) obstetric points.

Outpatient organizations are classified according to:

· organizational principle - independent or combined with hospital;

· territorial principle - district, city, central, regional;

· profile of activity - common (for service of adult and child population), separately for adults and children.

The territory of the polyclinic service and the schedule of its work are established health authorities and agreed with the authorities of administrative territorial administration. To provide availability of medical care clinic is located in maximum proximity to the place of residence of the population attached to it.

The basic principles of providing outpatient care:

- availability,

- territorial division,

- preventive focus,

- continuity,

- free,

- phasing.

The main directions of development of the outpatient polyclinic service in the Republic of Belarus:

- increasing the availability and quality of medical care to the population,

- increase in the scope of disease prevention measures,

- overcoming differences in the provision of medical care to urban and rural populations,

- improving the system of training and retraining of doctors and paramedical staff,

- strengthening the material and technical base of the outpatient polyclinic service,

- standardization of medical care to the population through the creation of protocols and algorithms based on international recommendations, recommendations of WHO, etc.

In ensuring the quality of care provided to the population in the clinic, *a scientifically based management system* is important. The collection and analysis of complete, timely information, the preparation of promising and current plans for the development of the organization are its primary basis. The main planned indicator characterizing the provision of population with outpatient care is attendance (average number of visits per 10,000 inhabitants per year).

6.3. City polyclinic: organizational structure, principles, tasks and features of work

Polyclinic – treatment-and-prophylactic organization intended to provide qualified assistance to the population living in the service zone, both in organizations and at home. The capacity of the clinic is determined by the number of visits per shift.

The structure of the clinic depends on its capacity and is presented as following functional units (Scheme 1):

·***Administration.***

·***Registry.***

·***Department of prevention.***

·***Medical departments.***

·***Diagnostic and support units:***

- X-ray room (department),
- clinical and biochemical laboratory,
- ultrasound diagnosis room,
- office (department) of functional diagnostics,
- endoscopy room

·***Department of medical rehabilitation.***

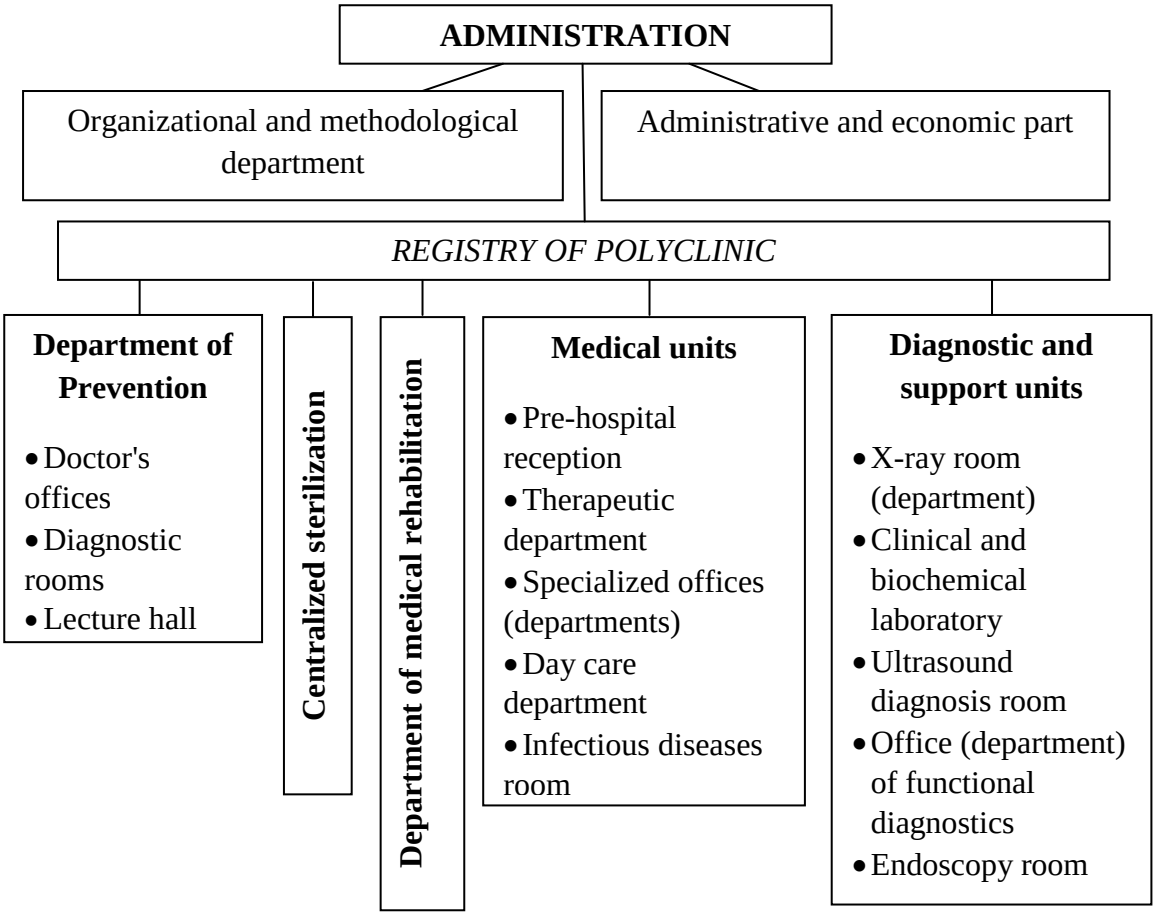
·***Centralized sterilization.***

·***Organizational and methodological department (medical statistics office).***

·***Administrative and economic part:***

- bookkeeping,
- lawyer's office,
- office of civil defense engineer,
- office of engineer for labor protection and safety,
- archive.

Scheme 1. The approximate organizational structure of the city clinic



Administration

The head physician directs the clinic. The most qualified specialist having organizational skills and management skills, is appointed to the post of chief physician. He is appointed by the health authority responsible for polyclinic. The appointment is coordinated with the executive administrative authority of the administrative territory.

The head physician is fully responsible for all treatment and preventive, organizational, administrative, economic and financial activities of the organization.

The head physician organizes and controls:

·therapeutic, diagnostic and preventive activities of the polyclinic;

·medical examination of the population;

·timely conduct of anti-epidemic measures in the service area;

·respect for the validity and procedure for issuing disability certificates;

·professional development of medical personnel;

·the involvement of doctors in research work;

·correct documentation;

·accounting and storage of potent substances and toxic substances and prescription forms on them;

·provision of the polyclinic with medical equipment, instruments, economic and soft inventory;

·regular analysis of the activities of all departments of the clinic, health status of the population living in the service area;

·financial and economic activities of the clinic.

The chief physician establishes the schedule of the polyclinic, approves the work schedule of the staff, plans to improve the skills of medical and paramedical personnel, medical conferences. His duties include hiring and dismissal of medical and administrative staff of the polyclinic, encouragement and bringing to disciplinary responsibility of employees.

The chief doctor together with the chief accountant makes an estimate of the polyclinic. He is the manager of loans, provides economical and rational expenditure of funds, the safety of material values. Provides proper preparation and timely submission to the appropriate instances of statistical, medical and financial reports. Timely considers complaints and applications of the population, takes on them the necessary measures.

The head physician is responsible for the sanitary condition, fire safety of the building and territory of the polyclinic, for safety engineering and labor protection.

Registry of polyclinic

The first acquaintance of visitors with the clinic begins with the registry. It is a structural unit of any outpatient organization. Competent organization of the work of the registry ensures the coherence of patient flow and, accordingly, the coherence of the work of all organizational units of the polyclinic, reduces the time spent by patients on visiting the clinic, largely determines their satisfaction with the results of the visit.

The composition of the registry: a desk of information, workplaces for receiving and registering calls to the doctor at home, a room for storing and selecting medical outpatient cards, a room for processing medical documents, a medical archive.

Registry Tasks:

- preliminary and current registration of patients for an appointment with a doctor with direct access to the clinic and by phone;
- regulation of the intensity of the flow of patients in order to create a uniform load on doctors;
- timely selection and delivery of medical documentation to doctors' offices;
- proper maintenance and storage of polyclinic card file, transfer of waste documents to the archive.

In accordance with the tasks **the registry carries out:**

- informing the public about the way the clinic operates;
- informing the public about the time of admission of doctors and the rules for calling a doctor at home;
- informing on the order of pre-appointment to the doctor, the time and place of
- bringing to the public of information about the addresses of pharmacies, clinics, hospitals, providing emergency medical care to the population in the evening, at night, on Sundays and public holidays;
- making an appointment with doctors (including a preliminary one) and registering home calls for doctors;
- referral of patients for fluorography and prophylactic examinations;
- informing the public about paid medical services;
- selection of outpatient medical records for patients who signed up for an appointment or called a doctor at the house;
- delivery of medical documents to doctors' offices;
- confirmation of certificates, disability certificates, referrals, prescriptions and extracts from medical documents issued by patients with relevant seals;
- strict accounting and registration of issued documents in relevant journals (computer data banks).

Nurses-recorders (medical registrars) work in reg. The posts of nurses-recorders are established from calculating 1 position for 5 positions of doctors conducting outpatient reception. The post of head nurse of the registry is set to the clinic with the number of posts of nurses-recorders - 8 and more.

Tasks of polyclinic

- Organization and implementation of a complex of preventive measures.
- Organization and implementation of the clinical examination of the population.
- Organization and implementation of anti-epidemic measures in the service area.
- Organization and carrying out activities for the hygienic education and training of the population, promoting a healthy lifestyle.
- Organization and implementation of medical and diagnostic assistance to the population in the clinic and at home.
- Organization and implementation of measures aimed at improving the demographic situation in the service area.
- Analysis of the health status of the population attached to medical care to the clinic.
- Introduction to the practice of hospital-substituting technology.
- Perfection the organizational forms and methods of the clinic, aimed at quality improvement and effectiveness of therapeutic and diagnostic work, medical rehabilitation of patients and disabled people.

6.4. Key performance indicators of the clinic

The following groups of indicators are calculated when analyzing the activities of the polyclinic:

I. Staff of health organization.
II. Indicators characterizing the volume and level of assistance in the outpatient setting.
III. Indicators characterizing the preventive work of the polyclinic.
IV. Indicators of clinical examination.

I. Staff of health organization.

1. Staffing of the organization with doctors, middle and junior medical staff

$$\frac{Number\ of\ occupied\ medical\ positions\ (nursing\ staff)\ x\ 100}{Number\ of\ full-time\ medical\ positions\ (nursing\ staff)}$$

2. Combination ratio

$$\frac{The\ number\ of\ occupied\ positions\ of\ doctors\ (nurses)}{The\ number\ of\ individuals\ doctors\ (nurses)}$$

3. The average population attributable to the occupied post of district doctor

$$\frac{Average\ annual\ population\ served}{The\ number\ of\ territorial\ sites}$$

II. Indicators characterizing the volume and level of assistance in the outpatient setting.

1. Average number of doctor visits per resident per year

$$\frac{The\ number\ of\ visits\ to\ doctors\ in\ the\ clinic + the\ number\ of\ home\ visits\ by\ doctors}{Average\ annual\ population\ in\ the\ service\ area}$$

2. Distribution of clinic visits by type of treatment

$$\frac{The\ number\ of\ visits\ to\ the\ clinic\ for\ the\ disease\ (with\ the\ preventive\ purpose)\ x\ 100}{The\ total\ number\ of\ visits\ to\ the\ clinic}$$

3. The structure of visits to doctors according specialties

$$\frac{The\ number\ of\ visits\ to\ the\ doctors\ of\ this\ specialty\ x\ 100}{The\ total\ number\ of\ visits\ to\ the\ clinic}$$

4. The amount of medical care at home

$$\frac{The\ number\ of\ visits\ by\ doctors\ to\ patients\ at\ home\ x\ 100}{The\ number\ of\ visits\ by\ pat\square ents\ to\ doctors\ in\ the\ clinic + the\ number\ of\ visits\ by\ doctors\ to\ patients\ at\ home}$$

5. The average hourly load of the doctor in the clinic

$$\frac{The\ number\ of\ visits\ to\ clinic\ (per\ day,month,year)}{The\ number\ of\ hours\ actually\ worked\ by\ doctors\ on\ a\ schedule\ at\ the\ clinic\ (per\ day,\ month,year)}$$

III. Indicators characterizing the preventive work of the polyclinic.

1. Comprehensiveness of preventive examinations of the population

$$\frac{Number\ of\ persons\ actually\ examined\ x\ 100}{The\ number\ of\ persons\ subject\ to\ inspection\ according\ to\ plan}$$

2. The scope of the population preventive examinations to identify a specific disease

$$\frac{The\ number\ of\ persons\ examined\ for\ the\ purpose\ of\ early\ detection\ of\ diseases\ (tuberculosis,cancer,etc.)\ x\ 100}{Average\ annual\ population\ size\ of\ the\ health\ organization\ activities}$$

3. The structure examined by dispensary observation groups

$$\frac{The\ number\ of\ inspected\ persons\ assigned\ to\ 1\ (2,3)\ group\ x\ 100}{Total\ number\ of\ persons\ examined}$$

IV. Indicators of clinical examination.

1. Completeness of the population of the dispensary observation

$$\frac{The\ number\ of\ persons\ under\ dispensary\ observation\ x\ 100}{Average\ annual\ population\ served}$$

2. The structure of patients who are registered at the dispensary registration

$$\frac{Number\ of\ patients\ registered\ for\ this\ disease\ at\ the\ end\ of\ the\ year\ x\ 100}{The\ total\ number\ of\ patients\ registered\ at\ the\ end\ of\ the\ year}$$

3. Timely coverage of newly identified patients with dispensary observation

$$\frac{The\ number\ of\ patients\ taken\ under\ clinical\ supervision\ with\ the\ first-ever\ established\ diagnosis\ in\ the\ current\ year\ x\ 100}{The\ number\ of\ regist\square red\ patients\ with\ the\ first-ever\ established\ diagnosis\ in\ the\ current\ year}$$

4. Activity of appearances to the doctor

$$\frac{Number\ of\ completed\ visits\ to\ the\ doctor\ by\ dispensary\ patients\ x\ 100}{Number\ of\ appointed\ visits\ to\ the\ doctor}$$

5. The percentage of hospitalized dispensary patients

$$\frac{Number\ of\ hospitalized\ patients\ from\ among\ those\ who\ needed\ hospitalization\ x\ 100}{Number\ needed\ in\ hospitalization}$$

6. Changes in the state of health of those undergoing clinical examination (improvement, deterioration, unchanged)

$$\frac{The\ numb\square r\ of\ dispensary\ patients\ with\ improved\ health\ (with\ deterioration,no\ change)\ during\ the\ year\ x\ 100}{The\ number\ of\ clinical\ patients\ observed\ over\ a\ year}$$

7. Mortality rate of clinical patients

$$\frac{The\ number\ of\ deaths\ among\ patients\ reviewed\ x\ 100}{The\ total\ number\ of\ patients\ reviewed}$$

The analysis of the dispensary work is carried out at the end of the year by sites, by branches and by institutions as a whole.

6.5. Territorial principle of the organization of outpatient care to the population. Types of sites

According to the territorial principle of service, the population living in the service area of the polyclinic is assigned to the polyclinic therapist to receive medical care. In the Republic of Belarus, in addition to the territorial (therapeutic, pediatric, obstetric-gynecological) sites, there is a general practitioner, a rural medical site, registered and shop sites. The base place of

work of district doctors is a clinic. In rural areas there is a rural district hospital or a rural outpatient clinic.

This consolidation gives a number of advantages in organizing medical services for the population. One of the most valuable is the awareness of the doctors of the polyclinic about the population, state of health, including the demographic situation, morbidity, as well as working conditions, life, local customs, traditions, etc.

In accordance with the Resolution of the Council of Ministers of the Republic of Belarus No. 811 dated June 20, 2007 “On Approving Minimum Standards for Servicing the Population”, the average number of the therapeutic site is 1,700 inhabitants, the general practitioner site is 1,200 people (adults and children).

The population size even in single-profile sites may be different. This is due to the fact that the management of the clinic in the formation of sites to ensure equal access for the doctor to the place of residence of the served population takes into account the length of the sites (the presence of the private sector), distance from the clinic, the state of transport.

6.6. Department of prevention of the clinic

The prophylaxis department is headed by the department chief appointed and dismissed by the head physician of the polyclinic. All primary patients are sent to the Department on the day of address.

Tasks of the Department of prevention:

- early detection of patients and persons with increased risk of disease;
- organization and conduct of preliminary and periodic preventive examinations;
- organization and control of prophylactic medical examination;
- organization and control of preventive vaccinations for adults;
- development of measures for primary and secondary prevention of diseases in the territory of polyclinic service;
- work on the promotion of sanitary and hygienic knowledge among the population, the formation of healthy lifestyle skills.

In accordance with the objectives the *Department of prevention of polyclinic provides:*

- planning of work of polyclinic on the organization of preventive examinations and medical examination of the population;

- the direction of all patients who for the first time addressed in this year, on preventive fluorography, women - in the examination room for the purpose of early detection of oncological diseases;
- preliminary preparation of patients for medical reception and preventive examination;
- measurement of blood and intraocular pressure (persons with complaints, as well as all over the age of 40 years);
- referral to take blood and other biological materials for analysis;
- provision of centralized accounting and control of preventive examinations of healthy individuals and patients under dispensary supervision;
- carrying out preventive inspections of persons subject to preliminary and periodic inspections;
- issuance of certificates and extracts from medical documents.

The structure of the Department of prevention (depends on capacity of clinic):

- The office of pre-medical reception.
- Examination rooms (female and male).
- Anamnestic office.
- Office of the organization and control of medical examination of the population and maintaining the centralized card file of the persons consisting on dispensary accounting.
- Cabinet of formation of a healthy lifestyle.
- Vaccination room.
- The office of occupational physician.

Vaccination room

Vaccination room is a structural unit of the Department of prevention. Its main task is to work on immunoprophylaxis of infectious diseases in the population.

In accordance with the task of the Cabinet staff carries out:

- the formation of the filing population vaccination of clinic based on annual census;
- provision of stock, control of the term of emergency funds in case of post-vaccination complications;
- immunization of the population in conjunction with therapists;
- timely receipt, correct accounting, expenditure and use of immunopreparations;
- compliance with the "cold chain" during storage, transportation of immunopreparations;

- reporting on performed vaccinations and movement of drugs in approved forms;
- carrying out work on hygienic education and training of the population.

A nurse works in the vaccination room. This position is assigned to a specialist with secondary medical education, trained in immunoprophylaxis, as well as owning the technique of preventive vaccinations. The doctor of the Cabinet of infectious diseases controls the work of the vaccination room.

The main vaccination document of the patient - "Accounting card of preventive vaccinations" (form № 063/y). The card is stored in a vaccinating office of policlinic, is filled during vaccination. Record about the carried-out inoculation, allergic test becomes also in the “Medical card of the out-patient” (form 025/y) and in the work log of the inoculation office. The vaccination card file is formed in the clinic from separate “Preventive vaccination record cards”. The vaccination card file can be built on the terms of the next vaccinations (accounting forms are located immediately for the current year, by months) or on the degree of vaccination (cards are arranged according to the calendar of vaccinations in the order of their sequence).

6.7. The content of the work of the district physician, medical specialists and general practitioner

The main specialist providing medical care to the population in the clinic is the district physician.

The basic sections of work of district doctor-therapist:

- Preventive work.
- Prophylactic medical examination.
- Medical and diagnostic work:
  - provision of medical and diagnostic services to the population;
  - monitoring of treatment and condition of patients in the service area in the course of their treatment from specialists of the policlinic;
  - examination of temporary disability;
  - organization and implementation of rehabilitation measures.
- Anti-epidemic work:
  - identification and treatment of patients with infectious diseases, organization of anti-epidemic measures in the focus;

- immunoprophylaxis.

- Hygienic education and training of the population, formation of skills of a healthy lifestyle.
- Organizational work:
  - work with the registration and reporting medical documentation;
  - planning and analysis of his activities;
  - introduction of advanced forms of work, professional development.

Organization of preventive examinations

Preventive medical examinations are organized by the district doctor together with the Department of prevention of the polyclinic in order to control the health of the population.

There are ***3 types of preventive examinations***:

Preliminary medical examinations are carried out for persons entering work or study in order to determine the conformity, suitability of workers and employees to their chosen work and to identify diseases that may be contraindications for work in the profession.

Periodic medical examinations are carried out in a planned manner in target dates to certain groups of the population and with the current appeal of the population for medical care in health care organizations.

Targeted medical examinations are carried out for the early detection of patients with certain diseases, for example, tuberculosis, malignant neoplasms, endocrine diseases, venereal diseases, glaucoma, etc.

There are individual and mass preventive examinations, depending on the form.

Individual inspections are carried out:

- at the address of the population in the organization of health care of out-patient profile (for the reference, for the purpose of registration of the sanatorium card, in connection with the disease);
- when persons are called for medical examination in the clinic;
- to persons being treated in hospital;
- at inspection of the persons who were in contact with infectious patients.

Individual examinations are the main form of medical examinations of the population.

Mass examinations are carried out among organized groups of the population:

- children of preschool and school institutions,
- boys of pre-conscription age,
- students of secondary specialized institutions and University students,
- workers and employees of enterprises and institutions.

Mass preventive examinations are complex and combine both periodic and targeted examinations. Inspections of the organized collectives are carried out on the basis of the agreed schedules and are regulated by the relevant orders of the Ministry of health.

The data of medical examinations and the results of the examinations are recorded in the medical documentation:

- "Medical card of ambulatory patient" (f. No. 025/y),
- "The individual card of the pregnant woman and the puerperant" (f. No. 111 / y),
- "History of child development" (f. No. 112 / y).

Based on the results of the inspection, the conclusion about the state of health is given and the observation group is determined:

- Group D 1 - "healthy" - are persons who do not make complaints and who have no history and examination revealed abnormalities in health.
- Group D 2 - "practically healthy" - are persons with borderline conditions and risk factors, often and long-term ill, convalescent after acute diseases.
- Group D 3-persons with chronic diseases.

6.8. Dispensary method in the clinic, its elements. Control card of dispensary observation. Tasks, stages of medical examination

Clinical examination (dispensary method) is a method of active dynamic observation of the health status of the population, aimed at promoting the health and employability, ensuring the proper physical development and prevention of diseases by carrying out a complex of therapeutic and preventive measures. The dispensary method is the basic method of work of ambulatory-polyclinic organizations.

The tasks of clinical examination:

- identification of persons with risk factors and patients in the early stages of the disease by conducting annual preventive examinations;
- active observation and rehabilitation of patients with pathology;
- creation of automated information systems and data banks on the dispensary registration of the population.

The dispensary method is used in territorial polyclinics, in children's polyclinics, in antenatal clinics, in medical and sanitary units and health centers of industrial enterprises, in polyclinics of Central district hospitals, in rural medical sites, and in dispensaries - tuberculosis, dermatovenerologic, neuropsychiatric, oncological , endocrinological, cardiological, etc.

The leading role in the clinical examination of the population belongs to the territorial polyclinics, and the central figure in its implementation is the local doctor (therapist, pediatrician, obstetrician-gynecologist, shop doctor, doctor of the rural medical district, general practitioner).

The implementation of the clinical examination in health care organizations consists of *interrelated steps*:

- accounting, population survey and selection of contingents for dispensary registration;
- dynamic monitoring of the state of health of those who are being examined and the implementation of preventive and therapeutic measures;
- annual analysis of the status of dispensary work in outpatient health care organizations, evaluation of its effectiveness and the development of measures to improve it.

Stage 1. Population accounting by sites by a medical attendant is carried out 2 times a year. At this stage, a population survey is also carried out to assess the state of health, detect risk factors, and early detect pathological conditions.

The contingents subject to clinical examination include both healthy individuals and individuals with pathology:

- persons who, due to their physiological characteristics, require systematic monitoring of their health (children, adolescents, pregnant women, vocational school students, university students);
- persons experiencing the effects of adverse factors of the working environment (workers of industrial enterprises with harmful and hazardous working conditions, working in agriculture);

- decreed contingents (food industry workers, public utilities workers, public passenger transport workers, health care workers, etc.);
- special contingents (persons affected by the Chernobyl disaster);
- invalids and participants of the Great Patriotic War and contingents equated to them;
- persons with chronic illnesses;
- convalescents after some acute diseases;
- persons with congenital (genetic) diseases and malformations.

When a patient is taken to a dispensary register, a control card of a dispensary observation (f.030 /y) gets him, which is kept by the doctor who carries out the dispensary observation of the patient.

Stage 2. Dynamic observation of patients undergoing clinical examination is carried out differentially according to health groups.

Health and preventive measures aimed at preventing diseases, promoting health, improving working and living conditions, as well as promoting healthy lifestyles are carried out for patients in group 1 of health.

Dynamic observation of persons classified as practically healthy has the goal of eliminating or reducing risk factors for developing diseases, correcting hygienic behavior, increasing the compensatory capacity and resistance of the organism.

Monitoring patients with acute diseases is aimed at preventing the development of complications and chronicity of the process. Patients with acute diseases with a high risk of chronicity and the development of severe complications: acute pneumonia, acute angina, acute glomerulonephritis and others, are subject to follow-up with a physician.

The frequency and duration of observation depend on the nosological form, the nature of the process, the possible consequences. For example, after acute sore throat, the duration of clinical examination is 1 month, after acute pneumonia - 6 months.

Clinical examination of persons with pathology provides:

1. Early detection of the disease.

2. Prevention of exacerbations, relapses, complications.

3. Preservation of working capacity and active longevity.

4. Reducing morbidity, disability and mortality by providing comprehensive qualified medical assistance, health and rehabilitation activities.

A dispensary group of persons with chronic diseases to be monitored by therapists consists of patients with the following diseases: chronic bronchitis, bronchial asthma, bronchiectasis, lung abscess, hypertension, coronary heart disease, peptic ulcer and 12 duodenal ulcer, chronic gastritis with secretory insufficiency , chronic hepatitis, cirrhosis of the liver, chronic cholecystitis and gallstones, chronic colitis and enterocolitis, ulcerative colitis, urolithiasis, chronic minutes glomerulonephritis, chronic pyelonephritis, osteoarthritis, rheumatism, rheumatoid arthritis, often and long ill.

Clinical examination of persons with chronic diseases is carried out on the basis of a plan of medical and recreational activities, which includes the number of medical visits, consultations with medical specialists, diagnostic studies, medication and anti-relapse treatment, physiotherapy, diet, sanatorium-resort treatment, planned hospitalization, rehabilitation measures, rational employment, etc.

Stage 3. Evaluation of the effectiveness of clinical examination.

The final stage of clinical examination is the analysis of the state of clinical work in health care organizations, evaluation of the effectiveness of clinical examination.

The analysis of dispensary work is carried out on the basis of the calculation of three groups of indicators:

·characterizing the volume of dispensary work;

·quality of clinical examination;

·the effectiveness of clinical examination.

Documents regulating implementation of population dispensary

- Order of the Ministry of Health of the Republic of Belarus No. 10 of January 10, 1994 “On Mandatory Medical Examinations of Employees Working in Harmful and Hazardous Working Conditions” (Appendix 1).
- Order of the Ministry of Health of the Republic of Belarus No. 159 of June 27, 1997 "On the implementation of the program for the integrated prevention of noncommunicable diseases in the Republic of Belarus".
- Order of the Ministry of Health of the Republic of Belarus No. 352 of May 10, 2007 “On Approval of the Instruction on the order of the examination of children”.
- Resolution of the Ministry of Health of the Republic of Belarus No. 96 of August 12, 2016 “On Approval of the Instruction on the order of the prophylactic medical examination”.

6.9. Office of infectious diseases of clinic. Sections and methods of work of the doctor of the office of infectious diseases

The Office of Infectious Diseases is a structural subdivision of the Medical department of the city polyclinic. The management of the cabinet of infectious diseases is carried out by the head. The staff of the infectious diseases cabinet are established in accordance with the staff standards, carried out or the planned scope of work based on the estimated time standards for conducting various studies carried out in the office (Order No. 184 of December 21, 2007). According to the order № 184, the staffing number of infectious disease physicians to provide outpatient care to the population is determined on the basis of the standards per 1000 inhabitants (adult and children).

The Cabinet of Infectious Diseases is located in premises that fully comply with the approved sanitary rules and standards, operating requirements and safety requirements. The main task of the Office of infectious diseases is to prevent the spread of infectious and parasitic diseases.

The main functions of the Office of infectious diseases are:

- coordination of the work of district doctors and specialists of the polyclinic, as well as interaction with the Center for Hygiene and Epidemiology on the prevention of infectious diseases and the prevention of their further spread in the service area;
- systematic work to improve the knowledge of outpatient physicians on clinical matters, early diagnosis, treatment and clinical examination of infectious diseases, organization of conferences to review all cases of lately identified patients with infectious diseases;
- advisory assistance to clinics to clarify the diagnosis, the appointment of therapeutic and preventive measures and hospitalization of patients with acute infectious diseases;
- outpatient admission of patients with suspected infectious disease;
- timely diagnosis and, if necessary, isolation and hospitalization of infectious patients, organization of sanitary-hygienic and anti-epidemic measures in the outbreaks of infectious and parasitic diseases;
- treatment of persons with infectious diseases in polyclinic conditions and follow-up treatment of convalescents after discharge from the hospital;
- control of the complete clinical and bacteriological recovery of patients with infectious pathology using methods of instrumental and laboratory research;

- dispensary observation and rehabilitation of convalescents, persons with chronic infectious diseases, bacterio- and parasitic carriers;
- conducting targeted medical examinations to identify certain infectious and parasitic diseases.

The main tasks of the infectious diseases specialist are:

- carrying out organizational and methodical work;
- providing qualified advice on early detection, as well as treatment and follow-up of patients with infectious and parasitic diseases living in the area of the polyclinic;
- preventive work with the population.

The scope of work of specialists of the infectious diseases cabinet is determined in accordance with the tasks, the provisions on their functional duties, as well as the estimated time standards for conducting various studies.

In the office of infectious diseases, the necessary accounting and reporting documentation for the approved forms and an archive of medical documents are maintained.

CHAPTER 7
ORGANIZATION OF EMERGENCY MEDICAL AID

Emergency medical aid (EMA) — a form of providing medical aid when a patient suddenly has some disease, trauma, intoxication or other emergency conditions, sudden worsening of the health level of a patient with chronic diseases, threatening his life, while which emergency medical interference is needed (law of the Republic of Belarus «About Healthcare article 16»).

State system of organization of EMA is in function in Belarus, including:

* **pre-admission level:**

- in the cities EMA stations with substations and branches, traumatology centres;
- in village administration districts — the departments of Emergency medical aid in Central district hospital (CDH) and EMA units;
- in regions — the departments of Emergency medical aid in regional hospitals.

*** hospital level:**

- hospitals of Emergency medical aid;
- the departments of emergency hospitalization of the general hospital network.

The activity of EMA stations (departments, hospitals) are regulated by the Ministry of Healthcare act from 12 October 2009 № 110 «About confirming the instruction on organization of Emergency medical aid service».

The structure of EMA service

In settlements with more than 100 thousand people EMA stations are established.

EMA substations are established in the districts of the city and in administrative-territorial units with population more than 50–100 thousand people.

The department of EMA is a structural subdivision of state organization of healthcare, offering EMA.

EMA unit is organized in the station (substation, department). EMA as a structural subdivision on the decision of the head of state healthcare organization. In the EMA stations other structural subdivisions can be made, including:

- operation section department of EMA station in the EMA stations with the amount of visits of EMA teams more than 250 thousand a year;

- the hospitalization department of EMA station in the EMA stations with the amount of visits of EMA teams more than 250 thousand a year.

EMA service is provided with ambulance cars according to the regulations, confirmed in the Ministry of Healthcare of the Republic of Belarus act № 72 from 21 April 2008 «About confirmation of regulations of providing state healthcare organizations of the Republic of Belarus with special cars».

System of management of EMA service

System of management of service has three levels:

1. Republican.
2. Regional.
3. District.

The principles of organization of EMA:

1. Availability.
2. Quickness in work.
3. Opportuneness.
4. Completeness.
5. High quality of provided aid.
6. Providing unimpeded hospitalization.
7. Maximum succession in work.

Tasks of EMA service:

1. Opportune providing of EMA to patients.

2. Providing the continuity of diagnostics — treatment process at the level of providing EMA with interconnection with outpatient — policlinic state organizations of healthcare.

3. Providing constant readiness to start work of EMA service in the case of emergency situations.

4. Methodical and organizational work on developing of EMA service.

EMA service performs:

1. In 24 hours mode:

In 24 hours mode EMA service provides:

- acceptance of calls to EMA teams and passage of them to the EMA teams;
- providing of 15-minute arrival in the city and 30-minutes arrival in village of EMA teams to the appointed addresses since the moment of the passage of the message to EMA brigades (point 18 of the Instruction «About the organization of activity of emergency medical aid»).

2. In the mode of higher readiness:

In the mode of higher readiness EMA service provides:

1) creation of necessary reserve of the EMA brigades;

2) direction of necessary amount of EMA brigades to accompany mass events in case of emergency;

3) providing of interconnection of EMA brigades:

*among themselves and with territorial bodies of management of healthcare and state organizations of healthcare;

*with operation services on duty of the Ministry of Internal Affairs of the Republic of Belarus and with the Ministry of Emergency cases of the Republic of Belarus.

3. In emergency mode (point 17 of the Instruction «About the organization of activity of emergency medical aid»).

***In emergency mode* EMA service provides:**

1) notification about the emergency to all the managing bodies of healthcare;

2) direction to the zone edge the necessary amount of EMA brigades;

3) performance of treatment — evacuation events to the injured while destructing the emergency case.

EMA brigade — the main functional EMA unit, consisting of doctor and (or) assistant(s), aid-man (-men), driver and provided with an EMA car.

Priorities of calls to EMA brigades

Calls are divided into:

1) special;

2) urgent;

3) emergency.

Special call of EMA brigade — the call of EMA brigade to a patient, because of the conditions, which for the moment of call are dangerous for patient's life and health:

- accident;
- falling unconscious;
- children have rash with high fever;
- patient's intoxication with chemical substances or remedies;
- hanging, sinking;
- huge burn;
- deep and huge injuries;
- seizures;
- acute breath disorder;
- emergency case;
- traffic accident with injuried;
- electrotrauma;
- failure from the height higher than patient's own height.

Special call of EMA brigade is passed by nurse or assistant responsible for calls to a free EMA brigade according to its specialty not later than 4 minutes after its registration.

Urgent call of EMA brigade — call of EMA brigade to a patient, because of the conditions, which for the moment of call are not dangerous, but without aid during an hour can cause a threat for patient's life and health:

- heart beat disorder (arrhythmia);
- heart attack;
- attack of asthma;
- trauma;
- foreign body;
- bleeding (gastrointestinal, uterine, nasal);
- frostbite;
- birth;
- sudden movement activity disorder;
- calling EMA brigade, connected with sharp worsening of patient's state with impossibility to clarify the reason of calling.

Urgent call of EMA brigade is passed by nurse or assistant responsible for calls to a free EMA brigade according to its specialty not later than 15 minutes after its registration.

Emergency call of EMA brigade — call of EMA brigade to a patient, because of the conditions, which for the moment of call are not dangerous, but without aid during a day can cause worsening to patient's health:

- significant change in blood pressure;
- allergy;
- headache;
- stomachache, backache, pain in chest;
- haemophilia;
- inadequate behaviour;
- renal colic;
- vomiting;
- rash;
- high fever (if the fever doesn't go down with the help of peroral remedies);
- acute urinary retention;
- food intoxication;
- sudden change of behavior of a child less than one year old;
- pain relief;
- transportation of a patient according to the call, made by medical worker.

Emergency call of EMA brigade is passed by nurse or assistant responsible for calls to a free EMA brigade according to its specialty or to outpatient state

organization of healthcare during its work hours not later than 1 hour after call registration.

Ineffectual visit of EMA brigade — it's a visit finished without providing any medical aid to a patient, because of wrong address or patient's absence at the address or false call of EMA brigade.

CHAPTER 8
THE ORGANIZATION OF MEDICAL CARE TO ADULT POPULATION IN A HOSPITAL

8.1. The range of hospital organizations. Organization of medical care in a hospital

According to the order of the Ministry of Health of the Republic of Belarus No. 35 of September 28, 2005, “On Approving the Nomenclature health organizations” the organization of health care, providing inpatient medical care, is a **hospital organization**.

The hospital organizations include:

- hospital;
- military hospital;
- medical sanitary unit;
- dispensary;
- center;
- maternity hospital;
- child's home;
- hospice.

Medical care provided to the population by inpatient health care organizations must comply with the established amounts guaranteed by the state budget.

Features of the functioning of the country's health system in difficult socio-economic conditions have identified the need for significant changes in the inpatient unit. The analysis of the provision of the population with beds of various profiles and the validity of the actual load pushes to make a decision on the reprofiling of the bed fund. Measures for the rational use of all health resources are widely developed and implemented. For this, the volumes of medical care are redistributed from the inpatient level to the outpatient level, as well as the introduction of resource-saving, hospital-substituting technologies, the transfer of hospital beds to the day stay regime, and development of extrabudgetary activities are produced.

All hospitals are divided according to a number of signs:

- on an organizational basis - combined with the polyclinic and not united (independent);
- on a territorial basis - urban and rural;

- on contingent - common (to serve the adult and children population) and serving only the adult population or only the child population;
- on a profile - on general and specialized.

The city united hospital is headed by the head physician. Depending on the capacity of the hospital, deputy head doctors are appointed:

- on medical work;
- on polyclinic work;
- on medical expertise and rehabilitation;
- on organizational and methodical work;
- by administrative part.

8.2. City hospital: tasks, functions, organizational structure

In its work, the city hospital relies on the basic principles of public health and performs the following **tasks:**

1. Ensuring accessibility of medical care.
2. Provision of free state-guaranteed medical services.
3. The introduction of modern methods of prevention, diagnosis, treatment based on the achievements of medical science, technology, best practices into practice.
4. Ensuring the unity of therapeutic and preventive measures.
5. The relationship of outpatient and inpatient care, ensuring continuity between health organizations.
6. Development and improvement of the organizational forms and methods of the hospital, improving the quality of medical and preventive care.

Functions of the city hospital:

- recovery functions (diagnosis and treatment of diseases, rehabilitation, elective and emergency medical care);
- prophylactic functions, especially for hospitals combined with a polyclinic (therapeutic and recreational activities, prevention of acute and chronic diseases, disabilities, etc.);
- training functions (training of medical personnel, advanced training, specialization);
- research functions.

The organizational structure of the hospital

The structure and functions of hospital organizations are dynamic concepts and depend on the tasks facing them at a particular stage. For example, the management system, even in the same capacity hospital organizations, can have significant differences in the structure and staff of the

administrative apparatus. However, the typical organizational structure of the hospital, combined with the clinic, is as follows:

1. Administrative unit:
    - Chief physician;
    - Deputy Head Doctor;
    - Chancellery;
    - Cabinet of statistics;
    - Archive;
    - Counting room.
2. Hospital:
    - admission department;
    - chambers;
    - specialized medical departments;
    - operating units.
3. Polyclinic with specialized rooms.
4. Medical diagnostic unit:
    - Clinical Diagnostic Laboratory;
    - Biochemical Laboratory;
    - Immunological laboratory;
    - Bacteriological and other types of laboratories;
    - Department of functional diagnostics;
    - Physiotherapy department;
    - Office of physical therapy.
5. Pharmacy.
6. Pathology Department Pathology Department.
7. Economic part.
8. Other structural units.

8.3. Admission Department: structure, tasks, organization of work. The duties of a doctor in the admission department and the reception nurse

Admission Department - "mirror of the hospital", where the patient first meets with the hospital organization. The "psychological attitude" of the patient depends on the clear work and culture of the staff of the reception department. Every patient who enters the emergency room should be treated with a caring, friendly attitude.

In a hospital with a capacity of up to 300 beds, a reception room is deployed, and more than 300 – a reception Department. Reception of patients by day is carried out by the head of Department, at night-the doctor on duty.

Types of hospital admission:

- planned (in the direction of the clinic);

- emergency (delivery by ambulance);

- independent treatment of citizens in the emergency room without the direction of the medical organization for medical reasons.

The admission department is located depending on the layout and construction of the hospital. There is a centralized and decentralized emergency room. The centralized admission department is located in the same building with all departments of the hospital. The decentralized admission department is located separately; each department has an independent admission department. The emergency room should be located near the entrance to the hospital and is available for transportation of patients and their visits. To do this, there must be a convenient, paved or asphalt road, a wide staircase and wide doors for passage with a stretcher.

The admission department consists of a lobby, reception, examination rooms, treatment room and sanitary inspection.

The lobby in the reception should be clean and bright. The necessary furniture, a table for magazines, newspapers, sanitary and educational literature is placed in it. For posters must be decorated with special windows and stands. Flowers, wall coloring, etc., contribute to creating coziness.

In the examination rooms patients are examined. They are provided with couches and linen, which is changed after each patient. The treatment room has the necessary tools to provide emergency medical care before the patient enters the hospital department.

At the emergency department there are also diagnostic chambers where patients are placed until the diagnosis is clarified. These chambers are located somewhat apart and they have a separate bathroom. In large hospitals there are operating rooms, traumatology, manipulation and radiology rooms.

All reception rooms should have direct natural lighting. The air temperature in the room should be at least 25° C so that the patient does not overcool during dressing. Near each couch in the examination rooms should be wooden flooring. Facilities for storage of clothing of patients are in close proximity to the emergency department.

Emergency room performs the following functions:

1. Reception of patients, diagnosis, decision on the need for hospitalization.

2. Registration of incoming, discharged, transferred and dead patients.

3. Accounting for the movement of patients in the hospital.

4. Medical examination and medical sorting of incoming patients.

5. Isolation of patients suspected of infectious disease and persons under the influence of alcohol.

6. First aid.

7. Sanitization.

8. Evacuation of patients to specialized medical departments.

9. Receiving things and issuing them.

10. Observation of patients to clarify the diagnosis.

11. Reference and information service.

In accordance with the Decree of the Ministry of Health of the Republic of Belarus No. 186 dated December 3, 2012, the positions of doctors in emergency departments are established:

- in regional hospitals - 1 round-the-clock post, in addition - 3.5 posts of surgeon;
- in other hospitals with beds:
  - from 500 to 800 - 3.5 doctor positions;
  - 800 and more - 1 round-the-clock post.

If an average of 100 or more patients is admitted to the emergency department during the day, the factor 2 is applied when calculating the number of doctors in the emergency department. The position of the head of the department is set instead of the doctor's position in the emergency department.

Responsibilities of the reception nurse:

1. Checking the documents of the patient (referral to the hospital, passport or other identity document). The absence of documents in the patient can not be an obstacle to admission to the hospital, if there are medical indications.

2. Registration in the journal admission and refusals in hospitalization (form № 001/y) and calling the doctor to inspect the patient. In case of refusal of admission should specify precisely the cause of failure and action taken (given outpatient treatment, are sent to another hospital, the transferred asset to the clinic, etc.). In the case of death of the patient in the emergency Department or the delivery of the corpse to the emergency Department about it the log entry (form № 001/y) according to the available documents and accompanying persons. The police are called; measures are taken for the delivery of the corpse to the service of judicial-medical examinations.

3. Registration of a medical card for each patient hospitalized (filling out the cover sheet, indicating the exact time of admission of the patient, the diagnosis of the referring medical institution).

4. Examination of the skin and hairy parts of the body to identify lice, measure body temperature.

5. Sanitization, dressing up the patient and delivery to the department, depending on his condition (with the attendant, on a gurney).

6. Fulfillment of doctor's prescriptions.

Responsibilities of the doctor of the emergency department:

1. The study for the planned admission of the patient, the presence of the necessary medical and other documentation, for unplanned admission - the accompanying documentation (if available).

2. Examination of the patient, the determination of the urgency of the surgical intervention, the required amount of additional research.

3. Filling out a medical history, making a preliminary diagnosis.

4. Determination of the need for sanitary and hygienic processing.

5. Hospitalization in a specialized department with the obligatory indication of the type of transportation.

6. In the absence of indications for hospitalization, providing the required minimum of outpatient medical care.

8.4. Diagnostic and treatment process in hospital organizations

The basis of the production activities of the hospital, determining the forms and methods of functioning of the system of organization of inpatient medical care to the population, is the therapeutic and diagnostic process. The quality of the treatment and diagnostic process is determined by the availability of medical personnel and their qualifications, the level of development of the material and technical base of the main, treatment and diagnostic and support units, etc.

The leading principles of the organization of the medical diagnostic process in a hospital are the consistency and continuity of its constituent elements, differentiation according to the degree of intensity of treatment and patient care, depending on the severity of their condition.

An alarm system (light, sound) is set up in the hospital wards to call the staff on duty. It is auxiliary. Heavy patient monitoring should be actively pursued. The nurse and the doctor on duty are obliged to periodically visit them without calling.

Only those patients who cannot be successfully examined and treated on an outpatient basis are hospitalized for inpatient treatment or for special diagnostic studies, due to the inability to provide in the outpatient setting of adequate treatment and care, due to the lack of the necessary conditions to perform therapeutic measures and special furnishings, apparatus and tools.

No less important condition for the proper organization of hospitalization of patients should be considered referral to the hospital strictly according to indications, that is, only patients who absolutely need hospital treatment and for their intended purpose, depending on the nature of the disease.

Another important condition for successful hospitalization is timeliness. To comply with this principle, it is recommended that all those in need of inpatient treatment be divided into three groups:

- the first group includes patients with acute illnesses requiring the nature of their illness and their state of urgent, immediate hospitalization (severe injuries, poisoning, acute stomach, bleeding);
- the second group includes patients who are certainly in need of hospitalization, but may be hospitalized for approximately 1–2 days from the time they set up the need for hospitalization (pneumonia, heart disease, kidney disease);
- the third group includes patients whose hospitalization is highly desirable, but which, without prejudice to their health, can be placed in a hospital with empty seats in the hospital, that is, in the manner of planned hospitalization.

This is a conditional division, since the time of hospitalization must be set strictly individually in each particular case. It depends on the timeliness of referring patients for medical care and the correct early diagnosis of the disease.

8.5. Medical departments. Functions of the head of department

The medical departments are the main structural element of the hospital. The capacity of the medical and diagnostic departments of the hospital is set taking into account the number of the population served, its need for medical care, the profile of the hospital. In emergency hospitals, for example, a large intensive care and resuscitation unit is needed, several planned and emergency operating rooms, a unit for express diagnosis.

The department of a large hospital with 60-70 beds is considered the most optimal. The positive moments with such a power of the department are the following: the most rational states are formed, there is a necessary set of

premises that provides the possibility of installing modern equipment, technology, etc.

The medical departments are connected with the common for the hospital clinical laboratories, auxiliary and economic services.

The staff of the department's medical staff is set according to the number of beds, the type and profile of the medical organization. The main ones in the staff structure of the department are the positions of the head of the department, resident doctor, and senior nurse.

The head of the department manages and controls the therapeutic and diagnostic work of the department. In accordance with the tasks facing the hospital, performs the following duties:

1. To manage the department (doctors, senior nurse, nurses, nurse hostess, distributor).
2. Daily conduct operational meetings in the department (take care of doctors, nurses).
3. Make schedules of doctors.
4. Schedule vacations of employees of the department.
5. Plan operations, taking into account the qualifications of the department staff.
6. To carry out inspection of the arrived patients in the first day.
7. Adjust the treatment plan and plan of examination of patients.
8. Daily examine in his ward patients in serious condition, as well as specialized patients during hospitalization in the intensive care unit.
9. To control the diagnostic and treatment process in the department.
10. Monitor the appropriateness of the appointment of the patients to the consultation of specialists.
11. Consultation in other branches.
12. To organize consultations.
13. Organize and conduct clinical and clinical-anatomical conferences.
14. To be present on the pathoanatomical studies of deceased patients.
15. After discharge the patient check and sign case histories and statistical patient records.
16. To carry out quality control of medical care to patients at the first stage of control with the imposition of data on the cover page of the medical history.
17. To introduce the latest achievements of medical science and technology into the work of the department.

18. To control the sanitary-anti-epidemic and treatment-protective regime in the department.

19. To carry out prevention of nosocomial infection.

20. Responsible for the proper storage, accounting and issuance of poisonous and potent drugs in the department, etc.

21. Monitor occupational health and safety in the department.

22. Represent patients on the medical consulting commission and the medical and rehabilitation expert commission.

23. To control the fulfillment by the patients of the internal regulations in the department.

24. Control the appointment of therapeutic diets for patients.

25. Regularly conduct administrative rounds in the department.

26. To provide a systematic increase in the level of training of medical personnel in deontology, to organize the deontological education of young specialists.

27. Analyze the activities of the department based on the model of the final results.

8.6. Organization of work of a hospital resident doctor

The hospital resident is directly responsible for organizing and ensuring the proper care of the patients entrusted to him and personally carries out timely and complete examination, dynamic observation and treatment of patients. He is appointed and dismissed by the head physician on the proposal of the head of the hospital department. The hospital resident is directly subordinate to the head of the department and provides:

- proper level of examination and treatment of patients;
- necessary care for patients based on the principles of the medical treatment regime and compliance with the rules of medical ethics;
- the implementation of patients established hospital regime;
- drawing up and implementing a scientifically based plan for the examination and treatment of supervised patients;
- systematic implementation of measures to improve the skills and education of middle and junior medical personnel;
- analysis of the quality indicators of his work, the study of the effectiveness and long-term results of treatment of patients.

The ordinator is directly responsible:

- for systematic and high-quality management of case histories in accordance with established regulations, with obligatory indication of the patient's condition, nutritional and sanitary-hygienic regime, medical

prescriptions, procedures, manipulations and other types of therapeutic measures, application of the most important diagnostic studies;

- for the formulation and conduct of sanitary-educational work among hospital patients through individual conversations, lectures and other forms of work;
- for the transfer to the doctor on duty of the hospital (department) lists with the names of patients requiring especially careful observation and active carrying out of operational or conservative therapeutic measures.

Functions of the resident physician:

1. Daily bypass patients with the ward nurse.
2. Participate in rounds with the head of the department and report to him about the condition of patients.
3. If necessary, take an active part in the consultations of patients with other residents of this department or other specialized departments of the hospital.
4. To put into practice modern methods of diagnosis and treatment of patients.
5. To conduct at a proper level the examination of disability and the timely referral of patients to the medical consulting commission.
6. Qualitatively and in due time to fill in the case histories, the necessary accounting and reporting documentation.
7. To analyze the indicators of the quality of the work.
8. Be on duty at the hospital according to the schedule.
9. Strictly follow the principles of deontology.
10. Monitor compliance in offices and wards with proper sanitary and epidemiological regime.
11. To promote sanitary and hygienic knowledge among patients.
12. Take part in the training of middle and junior staff.
13. To systematically work on improving the theoretical level, professional qualification by reading special literature, participating in conferences, clinical reviews of patients.

8.7. Organization of the work and functions of the ward nurse. Functions of senior nurse of department

The workplace of a nurse is a nursing post. Necessary parts for the organization of fasting are: a table with lockers, washable furniture, a cabinet for storing general medicines, a refrigerator for storing vaccines, solutions, suppositories, antibiotics, a safe for storing poisons, potent drugs, a place for

storing items, a table for manipulation, preparation of distribution of drugs, sink for hand washing. On the table of the nurse should not be anything extra.

At the nurse's post, in the lockers where medicinal substances are stored, there should be lists of higher daily and single doses of poisonous substances, a list defining the shelf life of drugs, lists of the expensive deficient group of drugs. Centralized pharmacy provides these lists.

The post of the nurse must be located so that she can see the whole department and have a direct connection with seriously ill patients (a light board, telephone, bell, TV). Fasting must be provided by local telephone communication, a list of local telephones, a schedule of working hours for auxiliary services (including plumbing, electricians), direct communication with the intensive care unit (if there is one in the hospital).

The duties of the ward nurse include all types of patient care. She takes the patient from the emergency room, checks the quality of sanitization, accompanies him to the bed, introduces the regime and the main provisions of the hospital's internal routine. Ward nurse monitors the cleanliness, order and silence in the wards, their regular airing, patient compliance with the rules of personal hygiene and regime, ensures timely reception of hygienic baths by them, changing of underwear and bed linen.

Her responsibilities include measuring the body temperature of patients, entering it into temperature sheets, dispensing medicines, monitoring their admission, injecting, pouring in, and other manipulations (banks, mustards, probing, catheterization, etc.), collecting materials for laboratory research. (urine, feces, sputum, etc.), measurement according to the indications of the daily amount of urine and sputum and entering these data into the history of the disease, counting, as directed by the physician, pulse and respiration, measuring blood pressure, preparing patients for various studies pits (x-ray, endoscopy), weighing and anthropological measurements. An important point in the work of the ward nurse is the preparation of patients for surgery (sanitary bath, enema, transportation to the operating room, etc.).

The duties of a nurse also include the selection of case histories of doctor's prescriptions, record keeping, preparation of requirements for medicines and items of care, proper maintenance of medical and household equipment, her post and chambers, keeping a journal of patients' movements.

According to the decision of the head physician of the hospital, the scope of work duties of a nurse can be supplemented with other functions if the situation requires it and they fall within the competence of the nursing staff.

There should be a nursing room in the department, where nurses could relax, change clothes, eat food, etc.

The nurse works under the supervision of the senior nurse of the department, who is appointed by the head of the department from among the most experienced and qualified nurses. She helps the head in organizing the work of middle and junior staff, in solving administrative issues, in keeping records and reports.

The senior nurse draws up work schedules for middle and junior staff, ensures proper sanitary conditions of the ward and patients, and is responsible for catering for patients and the supply of the ward with medicines. She is responsible for keeping records of and spending alcohol and dressing materials, keeps relevant documentation on separation, medical equipment inventory book, deals with property write-off, keeps a register of patients' arrival and departure in the appropriate form. The senior nurse should have available in printed form the functional duties of the entire department staff, a list with the addresses of all the department staff, an advanced training plan for middle and junior medical staff of the department, information on its implementation (attendance record), a syringe check log instruments for hidden blood. The senior nurse of the department, along with the sister of the housekeeper, goes around the wards daily, checking their sanitary condition, identifying the required amount of linen, interviewing patients in order to identify complaints and complaints about their care.

8.8. Department of Medical Rehabilitation

The main objective of this department is to conduct an early stage of medical rehabilitation of patients to restore health defects, stabilize the state, physical and social adaptation, which ultimately leads to an improvement in the quality of life of patients.

The following staff standards for medical workers of rehabilitation departments are approved in state health organizations. The position of the head of the department is established when the capacity of the department is not less than 30 beds. The positions of rehabilitation doctors are set at the rate of 1 position for 20 beds. The post of physiotherapist is set at the rate of 1 position for 120 beds of medical rehabilitation.

Nursing posts are set by:

- for 20 beds - 1 day post;
- for 10 patients with the consequences of neurological and neurosurgical diseases - 1 day post;
- for 50 beds - 1 position of a nurse of a procedural office.

The position of instructor in physiotherapy exercises is established:

- per 8 beds for neurological and neurosurgical patients;
- per 15 beds for cardiac, cardiac surgery and orthopedic and trauma patients;
- per 30 beds for patients of other profiles.

8.9 Analysis of hospital activities

The analysis of the activity is carried out according to the "Report on the activities of the hospital for ____ year" and the cards of the outgoing hospital (f. No. 066 / y).

The hospital activity report is compiled by hospital organizations of all profiles for adults and children and is submitted in due time to the parent health care authority.

There are the following groups of indicators:

- provision of population with inpatient care;
- load of medical personnel;
- material and medical equipment;
- use of bed capacity;
- quality and effectiveness of medical care.

Provision of population with inpatient care.

Availability of beds for 10,000 people:

$$\frac{\textbf{\textit{Number of mid-reach beds}}}{\textbf{\textit{Average population}}} * 10000 \ (1000).$$

This group of indicators also includes:

provision of beds for individual profiles per 10,000 (1,000) population;

bedside structure.

The level of hospitalization of the population per 1000 inhabitants:

$$\frac{\textbf{\textit{Hospitalized patien}}\square\textbf{\textit{s}}}{\textbf{\textit{Average population}}} * 1000.$$

Load of medical personnel.

Number of beds per 1 doctor position:

$$\frac{\textbf{\textit{The number of average annual beds in the hospital}}\ (\textbf{\textit{department}})}{\textbf{\textit{The number of positions of doctors in the hospital}}\ (\textbf{\textit{department}})}.$$

The staffing of the hospital with doctors (nurses):

$$\frac{\boldsymbol{The\ number\ of\ positions\ of\ doctors\ (nurses)\ in\ the\ hospital}}{\boldsymbol{The\ number\ of\ full-time\ positions\ of\ doctors\ (nurses)\ in\ the\ hospital}} * 100.$$

Use of bed capacity.

Average number of days a berth works (bed occupancy) per year:

$$\frac{\boldsymbol{The\ number\ of\ bed-days\ actually\ spent\ by\ patients\ in\ the\ hospital}}{\boldsymbol{Number\ of\ mid-year\ beds}}.$$

If the employment of bed fund exceeds the number of calendar days in a year, then this phenomenon is regarded as negative. It occurs if the number of patients admitted to hospital is greater than the number of full-time beds.

2. The average duration of stay of the patient in bed:

$$\frac{The\ number\ of\ bed-days\ spent\ by\ patients\ in\ the\ hospital}{Number\ of\ outgoing\ patients}.$$

The duration of treatment in the hospital is affected by the severity of the disease, late start of treatment, insufficient preparation for hospitalization (lack of necessary examinations), etc. When evaluating hospital activities for this indicator, the same name departments should be compared with relatively similar groups of patients treated.

3. Bed turnover (hospital bed function)

$$\frac{Number\ of\ patients\ used\ (half\ the\ amount\ of\ received,discharged,dead)}{Average\ number\ of\ beds}.$$

This indicator is one of the most important in assessing the effectiveness of the use of bed capacity. It is closely related to bed occupancy rates and treatment duration.

8.10. Organization of pathologic-anatomical service, its structure and functions

A certain part of the most severe patients in hospitals dies. In accordance with the law, the death of a patient in a hospital should first of all be ascertained either by the attending physician or by the duty doctor. In the department (preferably in a special room or office) the corpse should be 2 hours, and then it is transported to the pathoanatomical department of the hospital.

In the health care system, the pathologic-anatomical service performs the function of monitoring the quality of clinical diagnostics by comparing clinical and pathologic-anatomical diagnoses, identifying and discussing at the clinical-anatomical conferences medical errors and major defects in providing medical care to the population, which is a prerequisite for improving the professionalism and responsibility of the medical network doctors.

The tasks of the pathoanatomical service are:

1) establishing the causes and mechanism of death (thanatogenesis) with the disclosure of the nature and origin of the disease by dissection, followed by histological examination of organs and tissues;

2) in vivo determination of the nature of the pathological process using histological examination of biopsy material;

3) expanding the knowledge of the attending physicians by discussing the results of the pathologo-anatomical study and advice on clinical pathology;

4) comparison of clinical and pathoanatomical diagnoses in order to control the quality of the therapeutic and diagnostic process;

5) participation in the work of medical control commissions;

6) scientific development and synthesis of the results of the work of the department.

To perform these tasks in the pathoanatomical department:

1) an autopsy of all those who died in the hospital is held (exceptions are provided for by the legislation of the Republic of Belarus);

2) histological studies are performed - posthumous and in vivo (biopsy material);

3) cytological examinations are carried out posthumously and in vivo (if there is an appropriate laboratory);

4) periodically all-hospital clinical and anatomical conferences are held, devoted to the analysis of particularly complex clinical cases or specific issues of clinical pathology;

5) there are discussions of cases of gross errors in the diagnosis, tactics, and treatment of patients at meetings of the medical control commissions;

6) analytical reports on the causes of death of patients, the quality of their management in the hospital are prepared.

According to the legislation of the Republic of Belarus, the corpses of the dead from diseases in medical and preventive treatment facilities are subject to anatomopathological examination. Also, the corpses of those who died of diseases outside of medical institutions may be subject to post-mortem examination if these patients were treated by medical personnel before death, which is confirmed by records in the outpatient card, and for children in the history of the child's development.

The corpses of the deceased at the medical institution are sent to the pathoanatomical study by the administration of this institution, and the dead outside the medical and preventive institution by the health administration of the territory (the head physician of the polyclinic, the head of the municipal health department or their deputies).

In large cities, the pathologic-anatomical service can be centralized with the creation of corresponding centers (bureaus). Similar centers can be created at the inter-district level (in rural areas). These centers serve, as a rule, 6-10 thousand beds. Centralization and concentration of modern equipment (including computer equipment), highly qualified personnel, the availability of vehicles allow:

1) to conduct more complex types of research;

2) to speed up the timing of their implementation;

3) to have a more complete information base, giving the opportunity for indepth scientific analysis and generalizations;

4) to carry out more organizational, methodological and scientific advisory work.

In the Centers, in most cases, there are separate sectional and biopsy departments, as well as departments for different pathology profiles (general, infectious, pediatric, oncological, etc.).

CHAPTER 9
HEALTH PROTECTION OF MOTHER AND CHILD. THE ORGANIZATION OF OBSTETRIC AND GYNECOLOGY HELP TO WOMEN

9.1. System of protection of mother and the child

Questions of health protection of women and children are expressly reflected in article 32 of the Constitution of the Republic of Belarus: «Marriage, family, motherhood, fatherhood and childhood are under state protection». The main principles of a state policy in the field of public health care are defined in the Law of the Republic of Belarus "On Health Care". Among them are priority health services and medicinal maintenance of children and mothers. The conditions allowing to combine work with motherhood, the legal protection, motherhood and childhood encouragement are provided. To the pregnant woman medical supervision in the state organizations of public health services, stationary medical aid during and after sorts, and also the treatment-and-prophylactic help and medical supervision over newborns are guaranteed.

Artificial insemination is performed in health care organizations on a written statement of the woman. Operation of artificial interruption of pregnancy (abortion) for no more than 12 weeks is performed at the request of the woman. Medical sterilization with a view of deprivation of ability to posterity reproduction is performed only on a written statement.

Medical care for children is carried out by children's polyclinics, branches and consultations. The help to the female population appears in female consultations and maternity homes.

The motherhood and childhood protection is major direction of development of public health services in the Republic of Belarus.

System of protection of motherhood and the childhood represents the interconnected complexes of medico-social actions for maintenance of health of a mother, a fetus, a newborn and children. These complexes are realized stage by stage.

1. Medico-social preparation of women for a maternity (it actually the rendering of medical-social help to a woman outside of pregnancy).
2. Antenatal protection of a fetus.
3. Intranatal protection of a fetus.
4. Health protection of newborns.
5. Health protection of children during the preschool period.
6. Health protection of children during school age.

Obstetric and gynecological care appears to women in the specialized organizations of out-patient and stationary type. In cities: 1) incorporated maternity hospital with female consultation; 2) independent female consultation; 3) female consultation in structure of medical unit; 4) a gynecologic office as a part of a polyclinic; 5) obstetric department of the general hospital; 6) gynecological branch of the general hospital; 7) obstetric and gynecological clinic of medical university; 8) obstetric and gynecological scientific and practical center.

In a countryside: 1) maternity wards of central district hospitals; 2) obstetric and gynecological offices of rural ambulance stations; 3) obstetric points.

Since 1949 the basic type of the obstetric and gynecological organizations is the maternity hospital incorporating, as a rule, female consultation, obstetric and gynecological branches and newborn department.

The Ministry of Health of the Republic of Belarus, due to the presence in its structure of the **Department of medical care for mothers and children**, successfully implements the state policy in the field of maternal and child health. The department manages the organization of medical care for women and children of the republic.

Department in accordance with the tasks assigned to it performs the **following functions:**

- organizes measures to improve the provision of medical care to women and children;
- plans and organizes specialized medical care for women and children;
- improves medical care for women and children in the regions of ecological distress;
- organizes activities to improve the quality of follow-up of children, pregnant women and women with gynecological diseases;
- studies and analyzes the causes of the incidence of the female and child population, improves the forms and methods of preventive work;
- monitors the implementation of measures to reduce the incidence of female and child population, infant, child and maternal mortality, for antenatal protection of the fetus;
- organizes activities for the prevention of childhood disabilities;
- organizes activities to promote reproductive health, family planning, and the prevention of abortions;
- organizes activities for the development of medical and genetic services and prenatal diagnosis of congenital and hereditary diseases;
- introduces health organizations that provide medical care to women and children, advances in science, and advanced medical technologies;

- participates in strengthening the material and technical base of health organizations that provide medical care to women and children, in planning the provision of medicines, modern medical equipment;
- participates in the preparation of proposals for the improvement of legislation, the development of drafts of normative legal and other legal acts on the provision of medical care to women and children.

9.2. Levels of perinatal care

In order to improve the efficiency and quality of medical care for pregnant women, women in labor, childbirth, newborns, further reduction of maternal, perinatal, infant mortality in the Republic of Belarus, a multi-level system of perinatal care is functioning.

Perinatal care is a system for providing care to a woman, fetus and newborn, including the pregravid period, pregnancy, childbirth (delivery) and the postpartum period. The provision of perinatal care is based on the principle of equal access to specialized medical care in terms of its reasonableness and effectiveness.

The main postulate of creating a multi-level system - rendering medical assistance to a pregnant woman and a newborn, including obstetric care, should be carried out at the level where conditions are created for maximum preservation of the life and health of a pregnant woman, puerperal, childbirth and newborn baby.

Taking into account the existing risk factors in a pregnant woman (the risk of extra genital pathology, the course of pregnancy and the nature of the course of labor), as well as in predicting the characteristics of the birth of a child that will require anesthesia, resuscitation or other specialized medical care, measures should be taken to ensure that the pregnant woman is timely admitted. the level where, depending on the expected pathology, the necessary type of assistance will be provided to her and the children in full.

The multilevel system for the provision of perinatal care is a complex of organizational and therapeutic diagnostic measures aimed at improving the management and coordination of health organizations, providing medical care for pregnant women, women in labor, puerperas, newborns and children, reduction of maternal and infant losses, rational use personnel, financial, material and information resources.

The main objectives of the multi-level perinatal care system are:

- use of uniform criteria for quality perinatal care;

- accessibility for any woman and newborn of all components of the current system of perinatal care.

In the Republic of Belarus, four technological levels of perinatal care have been identified: *the first* – district (city), *the second* – interdistrict, *the third* - regional, and *the fourth* – republican.

Ranking of health organizations by levels, a list of indications for hospitalization individually for each region is developed and approved by the order of the head of the health department of the regional executive committee (chairman of the health committee of the Minsk City Executive Committee) in accordance with the technical equipment, staffing and qualifications of medical personnel, the severity of the hospitalized patient population, types and volumes of provision planned and emergency medical care.

Health organizations at all levels of perinatal care are obliged to strictly comply with the established requirements of regulatory documents, namely:

- must be in constant readiness for the timely provision of emergency medical care of any degree of complexity to women and newborns;
- must be equipped with first-aid kits of syndromic therapy for the relief of urgent complications of pregnancy, childbirth, the postpartum period (anaphylactic shock, eclampsia, amniotic fluid embolism, obstetric hemorrhage);
- should have approved by the chief physician of the organization of health care action algorithms in case of emergency, the algorithms of the transfer of duty;
- algorithms for providing medical care to pregnant women, parturient women, puerperas, newborns at all levels of care delivery are defined by approved protocols (standards) of diagnosis and treatment.

9.3. Responsibilities of the Chief Freelance Obstetrics and Gynecology Specialist of the Ministry of Health

According to the Regulation on the chief freelance specialist of the Ministry of Health of the Republic of Belarus the tasks of the main freelance specialist are:

1. Coordination of the activities of the supervised service, development and implementation of activities aimed at medical prevention, diagnosis and treatment of diseases, medical rehabilitation, medical examination of patients, strengthening public health, improving the efficiency and quality of medical care in his profile, improving the functioning of the drug quality control system in the Republic of Belarus.

2. The introduction of modern advances in medical science, new methods of providing medical care in practical health care.

3. Control over the rational and efficient use of material and technical base, the introduction of resource-saving technologies in practice.

In accordance with the tasks assigned to him, the chief freelance obstetrician-gynecologist:

1. Takes part in reviewing of:
   - educational standards in the field of higher, secondary special medical, pharmaceutical education;
   - model curricula for specialties of higher, secondary special medical, pharmaceutical education;
   - training programs in educational disciplines and practice for the specialties of higher education of I stage, secondary special medical, pharmaceutical education;
   - training programs in various academic disciplines of subordinatura;
   - internship plans and programs;
   - plans and programs of training in clinical residency.
2. Takes part in the work of the profile problem Commission of the Ministry of health to reduce morbidity and mortality, other commissions of the Ministry of health.
3. Participates in the development of models of the final results of obstetric and gynecological organizations.
4. Carries out the analysis of the implementation of state social standards and state and industry programs.
5. Takes part in the preparation of clinical protocols for the diagnosis, treatment of diseases and medical rehabilitation of patients, as well as orders and resolutions of the Ministry of Health.
6. Participates in the preparation of new forms of primary medical records, reporting and accounting statistical forms.

9.4. Organization of obstetric and gynecological assistance for the female population

There are the following types of organizations that provide medical care to women in cities:

1. Female consultations.
2. Inspection rooms of clinics.
3. City hospitals (gynecological and maternity wards).
4. City maternity homes.

5. Regional hospitals (gynecological department) or regional maternity hospitals.
6. Republican Scientific and Practical Center "Mother and Child".
7. Medical genetic centers.
8. State Institution "Center for Assisted Reproductive Technologies".
9. Non-governmental health organizations.

Obstetric and gynecological care in rural areas is provided in stages.

The first stage is a rural medical site, including a medical assistant and obstetric point, an obstetric-gynecological office in a local hospital or in an independent out-patient clinic.

The obstetric point must have a room that meets the sanitary and hygienic requirements and tasks of this institution: the waiting room, the paramedic's office, the midwife's office, the dentist's office, the treatment room, the physiotherapy room, the isolator, the bathroom, the office room, the paramedic's apartment, the kitchen. The obstetrician of obstetric point organizes preventive examinations of the organized and unorganized population by visiting medical teams, provides obstetric and gynecological assistance to rural residents in the service area, patronage of pregnant women, puerperas, newborns and gynecological patients. She carries out sanitary and educational work on the hygiene of children and women of different ages, contraception, and the prevention of cancer. The head physician of the local hospital supervises the provision of treatment-and-prophylactic care to women in the rural medical district.

The second stage are the district institutions, the main of which is the central district hospital (unites the female consultation and the obstetric and gynecological department).

The 3rd stage are regional and republican institutions (regional maternity hospital, obstetric and gynecological department of the regional hospital, office of obstetrician and gynecologist of the regional clinic, state advisory centers, scientific research institute of maternity and childhood, departments of obstetrics and gynecology of universities).

9.5. Tasks and structure of female consultation

The main structural and functional unit responsible for organizing and providing obstetric and gynecological care at the outpatient clinic is women's

consultation. Female consultation can be an independent organization or a structural unit of a maternity hospital, clinic, medical unit, hospital.

The main activity of the women's consultation is the provision of treatment-and-prophylactic assistance aimed at improving the health of women and preventing maternal and perinatal mortality. In order to achieve this goal, the following tasks are solved in the antenatal clinic:

- implementation of therapeutic and preventive measures aimed at the prevention of complications of pregnancy, childbirth, postpartum and gynecological diseases;
- psychoprophylactic preparation for childbirth;
- disability examination;
- the organization of preventive examinations among women in order to identify chronic inflammatory diseases, tumors, venereal diseases, etc.;
- timely diagnosis and registration of women in the early stages of pregnancy (up to 12 weeks);
- conducting a medical examination of all women with a burdened obstetric history (cesarean section, miscarriage, etc.);
- examination of women suffering from gynecological diseases;
- social and legal assistance to women; ensuring continuity with other health organizations (and especially with the children's clinic);
- work on the formation of a healthy lifestyle;
- carrying out activities to improve the skills of medical personnel.

Women's consultation also provides: interventions to prevent maternal mortality, stillbirths and infant mortality; prevention of late toxicosis in women; prevention of miscarriages and premature birth.

The structure of female consultation:

1. Cloakroom
2. Waiting room.
3. Registry.
4. Offices of obstetrician-gynecologists.
5. Office of children's gynecologist.
6. Office of the therapist.
7. Family planning room.
8. Office of the dentist.
9. Office of barreness treatment.
10. Socially-legal office.
11. Small operational.
12. Treatment room.
13. Colposcopy room.

14. Administrative offices.
15. Cabinet for psychoprophylactic preparation for childbirth.
16. Physiotherapy room.
17. Cabinets for administrative needs and other

9.6. Tasks of registry of female consultation:

- Organization of preliminary and urgent registration of women for an appointment with a doctor, both by direct contact with the antenatal clinic and by telephone, as well as via the Internet.
- Regulation of the intensity of the flow of patients in order to create a uniform load on the doctors.
- Ensuring the timely selection and delivery of medical records to doctors' offices.
- High-quality maintenance and storage of documentation in the card file of female consultation.

9.7. Duties of the obstetric doctor

When a woman first applies, the obstetrician-gynecologist is obliged:

– to take anamnesis;
– to conduct a general examination of the woman;
– to conduct general and special gynecological examination.

Duties of the obstetrician-gynecologist:

- ✓ diagnostic and therapeutic activities;
- ✓ early detection and registration of pregnant women;
- ✓ medical examination of pregnant women;
- ✓ identification of pregnant women requiring hospitalization;
- ✓ psycho-prophylactic preparation of pregnant women for childbirth;
- ✓ regular examinations of the female population;
- ✓ selection of gynecological patients for spa treatment;
- ✓ assisting with pregnancy planning;
- ✓ disability certificate for maternity leave;
- ✓ examination of temporary disability;
- ✓ carrying out sanitary and educational work;
- ✓ filling in accounting documentation;
- ✓ conducting preventive examinations.

9.8. Principles and features of work of female consultation

Women's consultation works on a territorial basis. One obstetric site includes approximately 2 therapeutic sites. The serviced site is assigned to each obstetrician-gynecologist. Norm is 1000-1500 women aged 15 years and older or 2000-2500 women and girls of all ages. Work is based on a sliding schedule.

The principle of the dynamic observation of women, aimed at the prevention and timely detection of the pathological processes of the reproductive system, is the basis of the treatment-and-prophylactic work of the antenatal clinic.

The obstetrician-gynecologist has the following design standard loads: 5 women per 1 hour of admission, 8 - during preventive examinations, and for work at home - 1.25 calls per hour.

9.9. Clinical examination of pregnant women

Clinical examination of pregnant women involves their early detection, carrying out the necessary examination, maintaining medical records, identifying risk groups, antenatal protection of the fetus, psycho-prophylactic preparation for childbirth, etc.

Identification of pregnant women is carried out in two main ways: 1) with the independent treatment of women in the antenatal clinic; 2) when conducting routine examinations in clinics, antenatal clinics, in sanatoriums and medical and sanitary points of enterprises.

All pregnant women are subject to clinical examination. Every obstetrician-gynecologist at the antenatal clinic should strive for the earliest possible registration of all pregnant women. Late treatment of pregnant women in the antenatal clinic does not allow the obstetrician-gynecologist to timely identify possible pathology during pregnancy. The effectiveness of its work in this case is reduced by 2 times.

Early periods are up to 12 weeks gestation. When a pregnant woman first applies to an antenatal clinic, she is given an “Individual card for pregnant women and women in labor”. In the normal course of pregnancy, a woman visits the consultation once a month in the first half of pregnancy, 2 times from 20 weeks and every 7-10 days from 32 weeks of pregnancy. On average, a pregnant woman should attend a consultation 14-16 times.

In the "Individual card of pregnant women and women in labor" an individual observation plan is drawn up and written down. "Cards" are stored in the office of an obstetrician-gynecologist in a card file. They are arranged in months and dates of the appointed follow-up visit. Cards of women giving birth and hospitalized pregnant women are stored separately.

Every pregnant woman visits the therapist twice. In the first half of pregnancy, the therapist determines the condition of the vital organs of the pregnant woman, deciding on the preservation of pregnancy. In the second half of pregnancy, the therapist identifies co morbidities; determines the need for hospitalization; recommends a mode of delivery in view of extra genital diseases.

Anamnesis data will be entered into the “Individual card of the pregnant woman and women in labor” at the first visit of the pregnant woman. Particular attention should be paid to the outcome of previous pregnancies and childbirth, the characteristics of menstrual function, the presence of gynecological and extra genital diseases. The data of the general examination of the woman, as well as height, body weight, size of the pelvis, blood pressure on both hands; data of special gynecological examination are entered into the "Card".

A woman must also attend an otolaryngologist, an ophthalmologist, an endocrinologist, and a dentist. If necessary, the rehabilitation of the oral cavity is performed. Doctors of other specialties (cardiologist, neuropathologist, etc.) advise a pregnant woman on indications. 3-4 times during pregnancy a general blood test is done, a smear for oncocytology is taken twice. Also, when registering a pregnant woman, the determination of blood type and Rh factor, fecal analysis, electrocardiogram are carried out, according to indications - other studies. Before each visit to a doctor, a woman should pass urine for analysis.

After a clinical, social and laboratory examination (up to 12 weeks of pregnancy), the pregnant woman’s belonging to this or that risk group is determined depending on the overall assessment of perinatal risk factors.

1. The high-risk group includes women with a general assessment of perinatal risk factors of 10 points and above.

2. Medium risk group - 5-9 points.

3. Low risk group - up to 4 points.

Depending on the degree of risk, marks are placed on the individual cards of pregnant women. If a pregnant woman has 10 points or more, the question of whether to maintain the pregnancy is decided.

Pregnant women suffering from comorbidities (arterial hypertension, diabetes, etc.) are simultaneously under the supervision of the respective specialist doctors.

At each visit of a pregnant woman, the doctor should pay attention to the mode of work, rest, nutrition and physical activity; detect the presence of overt and covert edema. Special attention should be paid to the functional state of the fetus: the presence of perturbations from the 18-20th week of pregnancy, listening to the fetal heartbeat, as well as determining its intended weight.

If necessary, certificates of transfer for easy or harmless work are issued. Such a transfer is made on a medical conclusion at any stage of pregnancy.

The interaction of women's consultations with the maternity hospital is carried out with the help of "Exchange cards", which are an integral part of individual cards. In the antenatal clinic, the following data is entered into the exchange card: biographical data, dates of all visits, laboratory and instrumental research data, consultations of other doctors, weight dynamics, vaccination data, and the term of the expected delivery. Exchange card issued to a pregnant woman. In the hospital, the data on the course of childbirth and the postpartum period, the state of the woman at discharge the data on the child (weight, height, condition at discharge, therapeutic measures) fit into it.

Patronage at home is carried out for the purpose of examining the home conditions of a pregnant woman, monitoring compliance with the regimen recommended by the doctor, and teaching personal hygiene. It is carried out, as a rule, by the forces of nurses. For patronage, cards of women who did not show up at the appointed time are also selected. Patronage at home is made by doctor's prescription. For the quality of its conduct midwife takes a tonometer, stethoscope, two-inch tape. A record of the results of patronage is entered into the “Individual Card”. In some cases, an obstetrician-gynecologist performs home nursing.

9.10. Perinatal protection of the fetus. Perinatal mortality

Perinatal protection of the fetus and newborn is primarily carried out by antenatal clinics, as well as specialized obstetric hospitals, sanatoria for pregnant women, therapeutic general and specialized hospitals, dispensaries, clinics for adults and children.

Ensuring the normal prenatal development of the fetus and the health of the newborn requires the organization of their perinatal protection, possibly from early pregnancy, when the fertilized egg and embryo are most sensitive to various harmful effects of external and internal factors. It is very important to identify women who have a high probability of death or damage to the fetus during pregnancy and childbirth. With systematic observation, proper examination and rehabilitation of pregnant women, rational management of childbirth, the threat to the fetus and newborn is significantly reduced. For women who were taken under observation in the early stages of pregnancy, they regularly visited the doctor, were fully examined and received the necessary treatment, the level of perinatal mortality is 2-2.5 times lower than its level as a whole.

Ways of perinatal protection of the fetus:

1. Recuperation of pregnant women, improvement of their working and living conditions, compliance with sanitary and hygienic requirements,

diet and rest, struggle with bad habits are the most important preventive measures for antenatal clinics in organizing perinatal protection of the fetus and newborn.

2. Social and legal section of the work of female consultation - the release of pregnant women from night work and overtime work, business trips, work related to the lifting and transfer of weights in excess of permissible norms, transfer pregnant women to lighter work, etc.

3. Selection and referral of pregnant women to various hospitals for hospitalization for prophylactic and therapeutic purposes: about 30% of registered women need hospitalization in the pregnancy pathology departments of obstetric hospitals and about 5% should be healed in sanatorium or semi-sanatorium departments. Of great importance is the preventive hospitalization of pregnant women with extra genital diseases in the first trimester of pregnancy for a qualified decision on the possibility of preserving pregnancy.

4. The development of specialized obstetric and gynecological care, the creation of perinatal centers that are intended to provide outpatient and inpatient medical care to women at high risk of developing perinatal pathology and their children. The center carries out prenatal diagnostics of threatening and pathological conditions of the mother and fetus, if necessary corrective therapy is carried out, delivery is performed to women at high risk of developing perinatal pathology, and intensive treatment of newborns, including premature infants, is carried out promptly and adequately. The creation of perinatal centers on the basis of obstetric hospitals, ensuring the organization of all obstetric care in the region using a high level of perinatal technology, is a promising reserve for reducing perinatal morbidity and mortality.

Perinatal mortality is a general indicator of the frequency of death of a viable fetus before the onset of labor, at the time of birth, and also of newborns who died in the first week of life (6 days, 23 hours, 59 minutes). The indicator is calculated on 1000 born alive and dead. The combination of stillborn children and the dead in the early neonatal period into a general indicator is due to the presence of a unity of etiological causes and pathogenetic mechanisms that, depending on the circumstances, can lead to fetal death in prenatal life, at the time of delivery or in the first days after delivery. Perinatal mortality allows to a certain extent to evaluate the activities of organizations providing obstetric care.

According to statistics, 60% of children who died in the perinatal period are premature babies. For each case of perinatal death of the child (fetus), a certificate of the case of perinatal death is filled out (f. N 106-2 / y). It must be registered in the registry office within 3 days.

According to some scientific studies, the direct causes of perinatal mortality are asphyxia, birth trauma, developmental abnormalities, hemolytic disease, congenital infections and some other causes.

A clinical and anatomical analysis of perinatal mortality shows that toxicosis during pregnancy, various pathologies of the umbilical cord and placenta, abnormal fetal positions, a long anhydrous period, weakness of labor and even maternal illness not related to pregnancy, lead to the immediate causes of fetal death mentioned above . Therefore, when developing measures for the prevention of perinatal mortality, it is necessary to pay special attention to the improvement of the woman's body before and during pregnancy, as well as to improving the quality of medical care for pregnant women and newborns.

9.11. Physical and psychoprophylactic preparation for childbirth

Physical training is carried out by group method. With the help of the medical staff, women master a special set of exercises that is recommended to be done at home before changing this set to a new one. Ultraviolet radiation of pregnant women is also carried out.

“Mother’s School” and “School of Future Fathers” function in female consultation center. The purpose of classes in them is to prepare a pregnant woman and her close relatives for future motherhood and child care.

In the second half of pregnancy (from 34-35 weeks), 5-6 sessions of psycho-prophylactic preparation for childbirth are conducted with women. The goal is to prepare a woman for childbirth, to teach how to behave during childbirth and to be able to remove pain syndrome during childbirth.

9.12. Dispensary observation of women after childbirth

After childbirth, a woman is recommended to visit the antenatal clinic 10-12 days after discharge from the obstetric hospital. At the same time, an obstetrician-gynecologist is acquainted with the data of the maternity hospital (exchange card, certificate) about the course and outcome of childbirth, reveals complaints, the nature of lactation, pays special attention to the state of the mammary glands, abdominal wall and the nature of secretions from the genital tract. Vaginal examination is performed according to indications.

Patronage at home is subject to: women who did not appear in the antenatal clinic 10-12 days after discharge from the obstetric hospital; women with a difficult postpartum period; women who did not appear again within the prescribed period.

Patronage of the newborn is carried out by a pediatrician and a district nurse within 3 days after discharge from the maternity hospital. Then, up to 1

month of life, the nurse visits the child at home 2 times a week, the doctor at home - at 14 days and 20 days from the day the child is born.

After 1 month of life, the child is observed by a pediatrician in a polyclinic. The nurse watches the child at home up to 6 months 2 times a month, after 6 months - 1 time a month.

9.13. Maternal mortality rate

The maternal mortality rate includes deaths of women that occurred during pregnancy or within 42 days after its completion, due to the cause of pregnancy. That is, it is death precisely because of the reason associated with pregnancy or its complications, while it does not depend on the duration and location of the pregnancy (uterine or ectopic).

Maternal deaths should be divided into 2 groups:

• death directly related to obstetric causes (complications of pregnancy, childbirth and the postpartum period);

• death indirectly related to obstetric causes (as a result of an existing disease or illness that occurred during pregnancy).

The maternal mortality rate is the number of women who died from complications of pregnancy, childbirth and the postpartum period per 100,000 live births. Live birth is the complete expulsion or extraction of the product of conception from the mother’s body, regardless of the duration of pregnancy, in case he has at least one of the signs of life (breathing, heartbeat, pulsation of the umbilical cord or obvious movement of arbitrary muscles). Note that the probability of maternal mortality increases with increasing age of the woman.

Thus, the main causes of maternal mortality are:

1. Abortions performed outside a medical facility.
2. Bleeding during pregnancy, childbirth and the postpartum period.
3. Late toxicosis of pregnancy.
4. Ectopic pregnancy.
5. Sepsis during childbirth and the postpartum period.

9.14. Clinical examination of gynecological patients

Clinical examination is the active identification of sick women in the early stages of the disease, dynamic observation and comprehensive treatment, the implementation of measures to improve working and living conditions, prevent the development and spread of disease. Women with chronic inflammatory processes of the pelvic organs, menstrual disorders, uterine myomas, adnexal tumors, prolapse of the genital organs, background and precancerous diseases of the cervix and body of the uterus are subject to clinical examination.

Clinical examination of women is carried out in health organizations that provide outpatient care. It includes: medical examination by an obstetrician-gynecologist, examination by medical specialists, laboratory, diagnostic methods of examination, individual comprehensive assessment of health status, making recommendations on the mode of work, physical activity, treatment (according to indications).

Results of medical examination are entered by the obstetrician-gynecologist in the medical record of the out-patient (form № 025/y).

There are the following groups of dispensary observation:

- **1 dispensary group** - women with chronic diseases, benign tumors and hyperplastic processes of the reproductive system and mammary glands, background diseases of the cervix;
- **2 dispensary group** - women with congenital anomalies of development and position of the genitals;
- **3 dispensary group** - women with impaired function of the reproductive system (infertility, miscarriage).

The minimum scope of the survey includes:

- history collection;
- fluorography of chest organs;
- pulse, blood pressure measurement (BP);
- breast examination;
- inspection of the external genitalia;
- the study with the help of mirrors, bimanual pelvic examination;
- bacterioscopic examination of the discharge from the urethra and cervical canal on the flora (smear);
- cytology of ecto- and endocervix smears;
- general urine analysis;
- general blood test;
- blood test for syphilis (RW); blood test for HIV;
- recommendations for pregravid preparation and contraception.

9.15. Organization of gynecological care and preventive examination of women

Gynecological diseases are detected in three ways: 1) when women apply for medical care in the antenatal clinic; 2) during preventive examinations; 3) during inspections in the women's examination rooms of the departments of prevention.

In order to best identify gynecological diseases, every woman in a territorial area should be examined by an obstetrician-gynecologist or midwife once a year, each working woman of an industrial enterprise - 2 times a year. For this purpose, inspection rooms are organized in the clinics

as part of the prevention departments, and special days of medical examinations are allocated at industrial enterprises. The obtained data is recorded in the patient's outpatient card.

Prophylactic examinations of the organized population include women working in industrial enterprises and institutions located around their area of activity, as well as women over 18 years of age living in the area of industrial enterprises. They are compiled "List of persons subject to a target medical examination."

If serious violations from the female genital area are identified, the doctor refers the woman to hospitalization or takes her under medical supervision. About 30% of gynecological patients need regular follow-up. “The control card of the dispensary observation” (f. № 030 /y) is filled in on every woman who is in the dispensary account. Dispensary observation is terminated after the woman recovers or in connection with her leaving the consultation service area.

Treatment of gynecological patients is carried out mainly in the antenatal clinic, but can also be organized at home, in the maternity hospital, in specialized clinics and in the clinic.

A midwife is assigned to work in the treatment room. Accounting of procedures is made in the "Journal of accounting of procedures." For every woman who initially appealed to the antenatal clinic, an “Outpatient Medical Card” is started. The diagnosis is also recorded in the “List of refined diagnoses”, on the basis of which the “Statistical card of the outpatient patient” is filled out.

The maximum level of gynecological diseases falls on women aged 30-39 years. Inflammatory diseases of the female genitalia occupy the first place in the structure of gynecological morbidity and are one of the causes of infertility, miscarriage, endometriosis, benign and malignant tumors, and menstrual disorders. Inflammatory diseases often occur after abortion, pathological and surgical labor.

In order to provide therapeutic and prophylactic care to working women at industrial enterprises by an obstetrician-gynecologist, special obstetric and gynecological days (hours) are allocated at the enterprise. The work schedule of the doctor is agreed with the administration and, if possible, with the schedule of working women. Also, personal hygiene facilities for women are organized in enterprises.

9.16. Model of final results (MFR) for female consultation

1. Performance indicators:

– timeliness of treatment of pregnant women (up to 12 weeks) – the ratio of the number of women under observation in terms of up to 12 weeks, to the total number of pregnant women multiplied by 100;

– average number of visits by pregnant women to the antenatal clinic (ratio of visits by pregnant women to the number of pregnant women);

– completeness of the examination of pregnant women: the ratio of the number of pregnant women examined by a therapist (dentist, RH factor, etc.) to the number of women who have completed pregnancy;

– the outcomes of pregnancy (percentage of pregnant women whose pregnancy resulted in delivery);

– coverage of pregnant women with psychoprophylaxis;

– indicators of gynecological morbidity of women (the ratio of detected gynecological diseases to the number of women multiplied by 1000).

2. Defect rates:

– maternal mortality - the number of deaths of women during pregnancy, childbirth and the first 42 days after childbirth (including deaths from complications of abortion) per 100,000 live births;

– the frequency of pregnancy complications (the ratio of the number of pregnant women with toxicosis or other complications to the total number of pregnant women);

– number of births complicated by eclampsia (per 1000 births);

– early neonatal mortality - neonatal mortality in the first 7 days of life (per 1,000 live births);

– perinatal mortality - deaths of a fetus or newborn between the 23rd week of pregnancy and 7 days after birth (perinatal period) (per 1,000 live and dead births);

– frequency of justified complaints (per 10,000 women):

- deontological nature,
- about the poor quality of preventive work, diagnosis and treatment.

9.17. Types of gynecological patients rehabilitation

The problem of medical rehabilitation in gynecology and obstetrics is currently more relevant than in the past. In today's unfavorable ecological, economic, social, and psychological situation, gynecological patients and pregnant women are characterized by polymorbidity — a multiplicity of diseases (mainly extra genital); decrease in adaptive reactions to the negative influences of the external environment; emotional lability; nutrition imbalance and hypodynamia.

Rehabilitation is understood as follow-up care in the conditions of women's clinics and clinics after the end of the main therapeutic measures in the hospital. There are next types of gynecological patients rehabilitation:

1. Medical rehabilitation - includes preventive maintenance of possible complications and consequences of diseases and traumas.

2. Professional - includes not only work capacity restoration, but also its preventive maintenance, and also questions of physiology and psychology of work, labour training, a training for a new profession.

3. Social rehabilitation - excludes influence of social factors on development and an illness current.

4. Pedagogical rehabilitation - carries out training in the course of rehabilitation of patients.

9.18. The medical documentation

1. Statistical coupon for registration of final (specified) diagnoses.
2. Outpatient Medical Card.
3. Follow-up control card.
4. Journal of birth attendance at home.
5. Book recording the findings of the medical advisory commission.
6. Disability Registration Book.
7. The diary of the work of the doctor of the polyclinic (dispensary, clinic, consultations).
8. Record of outpatient operations.
9. Sanatorium card.
10. Individual card of the pregnant woman, puerperal.
11. Exchange card.

9.19. Abortion as a medical and social problem

There was a time when abortion was punishable by death. In Europe, the death penalty for abortion was legalized in the sixteenth century. According to Russian legislation at the end of the 19th century, people who resorted to an abortion were punished with imprisonment and appeal to hard labor. From 1920 to 1936, abortion in hospitals was legalized. Then for three decades there was a ban, and since 1955 the government lifted the ban on abortions.

Abortion is a gross, violent traumatic intervention that causes hormonal and psychological disorders in a woman’s body. Artificial termination of pregnancy should be considered as a complex operation with serious consequences. After an abortion, the likelihood of complications

during pregnancy and childbirth increases by 3 times. Complications of abortion include: life-threatening bleeding; acute inflammatory diseases of the genital organs; ectopic pregnancy; sepsis.

With "criminal" abortions, often committed by people without medical education, it is possible to perforate the uterine wall with damage to the neighboring organs - the bladder, intestines, abdominal organs.

The long-term effects of abortion are chronic inflammatory processes with subsequent proliferation of connective tissue with the formation of adhesions, seriously complicating the course of repeated pregnancies and childbirth. After abortion, the likelihood of spontaneous miscarriage, premature birth, weakness of labor activity increases. Infertility is a serious complication of artificial termination of pregnancy, especially in cases where it is the first pregnancy.

The harmful effects of abortion are even more aggravated by the termination of the first pregnancy, and especially in adolescence, before the final development of the internal genital organs. Abortion preventive measures include giving advice on contraception; contraception coverage of all women who are not planning a pregnancy; individual selection of contraceptive method; contraceptive use training.

Medical indications for abstinence from pregnancy are:

1. Caesarean section (or other operations on the uterus) - not less than 2 years after surgery.
2. Childbirth - for 1 year after delivery.
3. Postponed severe common diseases - for 1 year.
4. Abortion - for 6-8 months.
5. Life-threatening diseases and conditions - ongoing.

Protection of motherhood and childhood involves family planning. WHO gives the following definition: “family planning is the control of the childbearing function for the birth of only desired children.” Family planning is one of the important ways to preserve the health of the population and the future generation. Decline in the birth rate today has become one of the most important problems in the economic, demographic and political spheres. In the Republic of Belarus, there is a general downward trend in the birth rate to the level of small families (1-2 children in a family). This level of fertility according to the calculations of demographers does not provide for simple reproduction of the population.

The age from 15 to 49 years is considered the fertile, or reproductive, period of a woman’s life. But normal, optimal for mother and child is pregnancy, occurred at the age of 19-39 years with an interval between births of at least 2.0-2.5 years. Pregnancy is the physiological state of a healthy woman and contributes to the prevention of female and oncological diseases.

Literate reproductive behavior and rational family planning greatly reduces the incidence of the female population. Too early (up to 19 years)

and too late (over 40 years) pregnancy, as well as too frequent births with an interval of less than 2.0-2.5 years have an adverse effect on the body of a woman and child.

9.20. Organization of obstetric and gynecological care in the maternity hospital

The obstetric aid service in the Republic of Belarus operates in accordance with the existing regulatory and legal framework according to a single principle. It is represented by hospitals providing specialized medical care.

These hospitals include:

- obstetric and gynecological departments, maternity wards in the structure of central district hospitals;
- city, regional maternity homes;
- obstetric and gynecological departments of general hospitals;
- clinical obstetric organizations, which are the bases of the departments of obstetrics and gynecology of medical universities;
- Republican Scientific and Practical Center "Mother and Child".

Maternity hospital is the main treatment-and-prophylactic organization that provides inpatient obstetric and gynecological care for women during pregnancy, childbirth and the postpartum period, medical care for newborns, and women with gynecological diseases.

The main task of the combined maternity hospital is to provide specialized inpatient care to women during pregnancy, childbirth and the postpartum period, as well as gynecological diseases; the provision of specialized medical care and care for newborns during their stay in the maternity hospital. Assistance is provided on a territorial basis. However, if desired, the woman has the right to choose the obstetric organization herself.

Regardless of whether the obstetric hospital is an independent organization or a maternity ward of a hospital, it must consist of five compulsory units:

1) reception unit (reception);
2) the first (physiological) obstetric department (wards) - 50-55% of the total number of obstetric beds;
3) the second (observational-isolation) obstetric department (wards) - 20-25% of the total number of obstetric beds;
4) department (chambers) of pathology of pregnancy - 25-30% of the total number of obstetric beds;
5) department (wards) for newborns in the first and second obstetric departments.

Other functional units of the maternity hospital:

- laboratory;

- X-ray room;
- ultrasound room;
- physiotherapy room;
- check-out room;
- economic service.

The first and second obstetric wards should be separated. In the presence of a gynecological department as part of a maternity hospital, its capacity should be 20-25% of the total number of beds. It should be isolated, have its own receiving unit.

In the gynecological department there are two profiles of beds: for conservative treatment; for surgical treatment. Baby cots may also be provided.

Ensuring the complete isolation of the flow of women entering the various departments for delivery is envisaged in the layout of the maternity hospital. In the receiving-access unit equipped with a separate examination for each obstetric department. Each viewing room should have a special room for sanitary treatment of incoming women, equipped with a shower and toilet.

The referral of women to the maternity hospital for emergency medical care is carried out by the station (department) of the emergency medical service, as well as by the obstetrician-gynecologist of the antenatal clinic, doctors of other specialties and nurses. A woman can independently contact the maternity hospital. Planned hospitalization of pregnant women in the maternity hospital is carried out by an obstetrician-gynecologist, and in his absence by a midwife.

Upon admission to the hospital, information about pregnant women is transferred to the "Journal of Reception of Pregnant Women." The history of childbirth is also filled. The doctor on duty or the head of the department gets acquainted with the "Exchange card". A general examination of a woman is made: weighing, measuring height, abdominal circumference, height of standing of the bottom of the uterus above the womb; determining the position and presentation of the fetus, listening to the heartbeat of the fetus.

After sanitization and clearance, the woman receives a bag with sterile underwear and goes to the appropriate department of the hospital.

The generic unit is the main structural unit of both the first (physiological) and second obstetric departments. The patrimonial block includes: prenatal chambers (10-12% of all beds in the department); birth wards; small and large operating; intensive care unit for newborns; treatment room.

Actions in the prenatal wards are reduced to medical observation, measurement of blood pressure every 2-3 hours, measurement of body temperature, medical therapy (if indicated), monitoring of fetal heartbeat and assessment of its condition.

The generic unit is equipped with special equipment for the centralized supply of oxygen, equipment for anesthesia, a defibrillator, electric pumps, germicidal lamps, the necessary tools, etc. As a rule, there are 2 generic units for the purpose of periodic sanitary processing.

Uncomplicated deliveries in the cephalic presentation are taken by a midwife, all other births by a doctor. Small and large operating rooms should be equipped with everything necessary for the treatment of perineal fractures, manual separation of the placenta, cesarean section, uterus amputation.

The first toilet of the newborn, eye treatment, measurement of the length and body weight of the child is performed by a midwife in the birth unit. After 2-2.5 hours, the woman is transferred to the postpartum ward, the newborn to the ward for newborns.

The chambers of the postpartum department are filled in a cyclical way, that is, women simultaneously arrive and leave at the same time, after which the cleaning is done. Frequency - 1 time in 7-9 days. Temperature - 20-22C. There are also cabinets: a lookout, a procedure room, a nurse on duty post, a canteen, the office of the head of the department, the office of the head nurse.

The number of cots in the neonatal department should correspond to the number of parental beds in the postpartum department. 10-12% of cots are allocated for premature and weak children. In the second obstetric department there should be boxed wards. For the organization of full care for each cot should be at least 2.5 m2. Medical supervision and care of newborns are provided by a neonatologist and qualified nurses.

In this department more than in any other, strict adherence to the rules of hygiene and asepsis is necessary. Great importance is the proper feeding of children. Daily observations of the child are entered by the doctor in the history of the child's development. Only healthy children are discharged home. Deeply premature and sick children are transferred to specialized children's departments.

Observational department should be strictly isolated. When moving from one department to another, a special dressing gown is worn. In the department of newborns there are boxed wards.

9.21. Indications for admission to the observational department

The indications for admission to the observational obstetric department are:

• - acute respiratory diseases (flu, sore throat, etc.), manifestations of extragenital inflammatory diseases (pneumonia, etc.) in the absence of a specialized obstetric hospital in the city;

• - feverish conditions (body temperature above 37.6 degrees) in the absence of clinically expressed other symptoms;

• - long anhydrous period (rupture of amniotic fluid 12 or more hours before admission to the hospital);

• - intrauterine fetal death;

• - fungal diseases of hair and skin, skin diseases of a different etiology (dermatitis, eczema, psoriasis, etc.);

• - purulent-inflammatory lesions of the skin, subcutaneous fat;

• - acute and subacute thrombophlebitis;

• - acute pyelonephritis, other infectious diseases of the urinary system in the acute stage;

• - manifestations of infection of the birth canal (colpitis, Bartholinitis, genital warts, chorioamnionitis, etc.);

• - clinical or laboratory confirmation of infection with a high risk of intrauterine infection of the fetus (toxoplasmosis, listeriosis, cytomegaly, rubella, herpes, syphilis, gonorrhea, HIV infection, etc.);

• - tuberculosis of any localization;

• - diarrhea;

• - early postpartum period (24 hours) in the case of birth outside the obstetric hospital;

• - osteomyelitis;

• - fistula;

• - lack of medical documentation (exchange card) or incomplete examination of a pregnant woman in the conditions of antenatal clinic.

Pregnant women, parturient women and puerperas with the following symptoms and conditions are to be transferred to the observational department from other departments:

• - increase in body temperature in childbirth to 38 degrees and above (with a threefold measurement every hour);

• - fever of unknown origin (body temperature up to 37.50 ° C), lasting more than one day;

• - established diagnosis of postpartum inflammatory disease (endometritis, mastitis, wound infection, etc.);

• - manifestations of extra genital inflammatory diseases that do not require transfer to a specialized hospital (ARVI, tonsillitis, herpes, etc.).

9.22. Organization of specialized care for women

In the struggle to further reduce maternal and perinatal mortality and improve the quality of care for pregnant women, organizational forms of obstetric hospitals are improving. For this purpose, specialized departments are being developed in maternity hospitals for pregnant women suffering from cardiovascular pathology, tuberculosis, diabetes, etc .; for pregnant

women with incompatibility of blood of the mother and the fetus by the Rh factor; with the threat of preterm birth. These units are equipped with special wards for premature babies. Specialized departments and wards for the care of premature babies and the treatment of sick newborns began to be established in children's hospitals.

Along with the specialization of inpatient obstetric care, it was recommended to organize specialized consultations on the prevention and treatment of miscarriage, infertility, incompatibility of maternal and fetal blood on the Rh factor, as well as consultations for gynecological patients with endocrinological disorders, inflammatory diseases, neoplasms; for girls suffering from gynecological diseases, etc.

9.23. Sanitary and hygienic regime of the maternity hospital

Strict isolation of sick or untested women from healthy at admission and during their stay in the maternity hospital is carried out in order to prevent purulent-septic diseases of pregnant women, parturients, puerperas and newborns.

The medical staff of maternity hospitals belongs to decreed contingents of the population, therefore employees of maternity homes periodically undergo a medical examination (fluorogram, bacteriological examination, examination by a dentist, gynecologist, otorhinolaryngologist) with their results recorded in special documents (medical books) and, if necessary, with discharge from the employee.

A maternity hospital must be closed twice a year for disinfection and maintenance. In the event of an outbreak of an infectious disease in the maternity hospital, it is closed for disinfection off-schedule.

Postpartum and newborn wards should be filled cyclically. Pregnant women and newborns who gave birth or were born on the same day are placed in one ward. The women who gave birth or children born the next day are placed in another room, even if there are free beds in the previous room.

Wet cleaning in the premises is carried out 2 times a day. General cleaning of the premises is carried out once a week with a 6% solution of hydrogen peroxide with a 0.5% solution of detergent or with a 5% solution of chloramine. The room and all equipment are wiped with a sterile cloth, abundantly moistened with a disinfectant solution. After that, the room is closed for 4 hours, and then washed with water using sterile rags. The medical staff puts on clean robes, shoes and masks. After the end of the cleaning germicidal lamps turn on for 1.5-2 hours.

After discharge of the puerperal and the newborn mattresses, blankets are treated in a disinfection chamber, bed linen is delivered to the laundry. In the postnatal wards and the wards for newborns vacated, final disinfection is carried out (just like spring-cleaning).

Medical staff to work in the maternity hospital should have a clean, removable underwear, in which he changes clothes before starting work.

To protect the air environment from insemination by microorganisms, you must follow the rules of wearing medical masks. Gauze mask in 4-5 layers must be changed every 3 hours.

Sanitary education methods.

- Individual and group interviews at the doctor's office (mainly with pregnant women).
- Classes in the "Mother's School" (from 16 weeks of pregnancy).
- Psychoprophylactic preparation for childbirth (from 32 - 34 weeks of pregnancy).
- For future fathers should be organized training program "School of Fathers".
- Joint classes of pregnant women and their husbands.

9.24. Organization of inpatient gynecological care

The gynecological department occupies 25-30% of all beds. The gynecological department should have two bed profiles: for surgical and conservative methods of treatment.

If it is impossible to isolate independent departments, it is desirable to ensure the maximum separation of the patients of these profiles into separate chambers, especially patients with inflammatory processes. In the gynecological department, in addition to the wards, there must be a small and large operating room, a physiotherapy room and a discharge room. In recent years, specialized gynecological hospitals have been established. A separate gynecological station is also separately identified.

9.25. Finally Model Indicators (FMI) for gynecological, obstetric and neonatology departments

1. Performance Indicators.

1.1. Use of bed fund of the maternity hospital (department):

a) the number of days of bed occupancy per year;

b) bed turnover (function);

c) the average number of days the patient is in the hospital.

1.2. Complications during labor:

a) the frequency of bleeding;

b) the frequency of birth injuries.

2. Indicators of defects.

2.1. A divergence of clinical and anatomical diagnoses (% to died).

2.2. Postoperative complications (% to operated).

2.3. Repeated hospitalization in connection with complication, a premature extract because of branch (% to hospitalized).

2.4. An untimely direction on medical rehabilitation expert commission (% to subject to survey).

2.5. Daily mortality.

These indicators are also used in other hospital profiles. In addition to them, maternal mortality, stillbirth, and the frequency of postpartum complications are used in maternity hospitals and obstetric wards.

The model of final results (MFR) for neonatologist maternity hospitals or obstetric branches includes:

1. Productivity indicators.

1.1. A degree of quality.

1.2. Average duration of stay of the newborn in maternity hospital.

1.3. Lethal newborns in maternity hospital (% to born live).

2. Indicators of defects.

2.1. The incidence of newborns in the first 10 days of life (cases per 100 newborns).

2.2. Daily infant mortality from respiratory distress syndrome caused by lung atelectasis (cases per 100 newborns).

2.3. Number of cases of discharge of newborns without prior notification of discharge at the child’s place of residence (per 100 discharged).

CHAPTER 10
ORGANIZATION OF OUT-PATIENT AND HOSPITAL ASSISTANCE FOR CHILDREN

10.1. Network of health organizations that assist children

Medical care for children is provided by the following organizations:

1) Children's hospitals (regional, city, interdistrict, central district hospitals with children's departments).

2) Pediatric research institutes.

3) Children's sanatoriums (orthopedic, craniological, etc.)

4) Summer camps.

5) Kindergartens.

6) Schools and boarding schools.

7) Mother and child rooms.

8) Baby food items and dairy kitchens.

9) Orphanages (institutions where children are brought up, kept mainly with state funds).

The main children's medical organization is the United Children's Hospital - a hospital and a polyclinic, headed by the head physician and deputy chief physicians for therapeutic and preventive issues, the outpatient service and the economic unit.

Types of children's hospitals: multidisciplinary and specialized, combined and not united, different in capacity (there are 7 categories - from 50 to 400 beds). The inpatient, outpatient, diagnostic departments and the administrative part are the main units that make up the joint hospital.

10.2. The structure of the children's clinic and the role of the registry in its work

The main link in the pediatric service is the children's clinic (department). In its activities, it provides medical and preventive care for children under 18 years old (17 years 11 months 29 days). A feature of the children's clinic is the presence of two blocks: for the admission of sick children and the admission of healthy children.

The room for receiving children-patients consists of a filter with boxes and with an insulator. It must have a separate entrance and exit.

The room for the admission of healthy children consists of a filter, a waiting room, a dressing room, a reception (for recording to specialist doctors and calling a doctor to a house); head office; cabinets of district pediatricians; vaccination room; room of a young mother; diagnostic auxiliary facilities; offices of narrow specialists (cardiologist, rheumatologist, surgeon, orthopedist-traumatologist, otorhinolaryngologist, ophthalmologist,

psychoneurologist, etc.); clinical diagnostic laboratory; physiotherapy room; radiology room; cabinet of physical therapy.

The capacity of the children's clinic is determined by the number of visits per shift:

category I - 800 visits;
category II - 700 visits;
category III - 500 visits;
category IV - 300 visits;
category V - 150 visits.

Background information in the children's clinic includes: opening hours of the clinic and individual doctors, the rules for admission of children to the clinic, the procedure for calling a doctor at home and an emergency doctor, the location of medical stations, addresses of duty clinics, pharmacies, a list of necessary documentation for registration of a child in preschool institutions and school.

Tasks of the registration of the children's clinic:

- Preliminary and urgent registration of children to the doctor and for home care.
- Timely delivery of medical records to the doctor’s office.
- Reference service.

Reduction of workflow in the children's clinic clinic can be achieved by introducing self-appointment, calling a doctor for home care via the Internet, optimizing the flow of clinic visitors, availability of background information, etc.

Principles and features of the children's clinic:

The basis of the children's clinic is the precinct principle of providing medical care. About 800 children are assigned to the pediatric section. One pediatrician serves about 2500 children of school age, or 700 - kindergarten or 250 - nursery. On 8-10 pediatric sites, 1 head of department is allocated. Work is planned under the sliding schedule.

The children's clinic has a two-tier service system. The doctor works at the reception for 4 hours, the rest of the time - home visits. The load on the reception is 5 people per hour, at home - 1.5 visits per hour. Within 1 year there are 6 scheduled visits for 1 child.

The principle of alternation is also observed.

Dispensary method of service.

Continuity of observation of the child from the first days of his life.

Stages in treatment: polyclinic, hospital, sanatorium.

Continuity in the work of doctors between a children's clinic and a women's clinic, a children's clinic and a maternity hospital, between a children's clinic and an adult service clinic (adolescent service).

10.3. The basic directions of work of a children's polyclinic

1. Preventive measures among children.

1.1. Providing dynamic medical monitoring of healthy children.

1.2. Preventive medical examination of children.

1.3. Carrying out preventive vaccinations.

1.4. Organization of collection of breast milk. Ensuring the smooth operation of dairy kitchens and dairy distribution points included in its structure.

1.5. Lectures, talks, conferences for parents, classes at the school of mothers, etc.

2. Medical advice for children at home and in the clinic.

2.1. Primary and specialized medical care.

2.2. Referral to hospital on the testimony.

2.3. Referral to the sanatorium.

2.4. Selection in specialized nursery-gardens, forest schools, pioneer camps, etc.

3. Medical and preventive care in preschool institutions and schools.

4. Anti-epidemic measures (together with the Center of hygiene, epidemiology and public health).

5. Legal protection of children.

6. Professional development of medical personnel.

The same sections form the basis of the work of the district pediatrician. The main tasks of the district pediatrician are: further reduction of morbidity and mortality of children of all ages, ensuring optimal physical and mental development of children through the widespread introduction of a set of preventive measures both specific and non-specific. The schedule of work of the district pediatrician should be sliding, stable on time of the beginning and the end of reception in policlinic, two-link on system of rendering medical care.

10.4. Rights and duties of a pediatrician and district nurses

The duties of a pediatrician include:

1. Interaction with women's consultation. Creating continuity in monitoring pregnant women (especially those at "risk").

2. Patronage of newborns in the first 3 days after discharge from the maternity hospital. Control visits of newborns at home are carried out by a nurse.

3. Reception of children in the clinic. Recommendations on the regime of the day, a balanced diet, specific and nonspecific prevention of rickets. Assessment of physical and mental development of children.

4. Preventive supervision over children. A direction on consultation to doctors-experts and on necessary laboratory researches.

5. Planning (together with the nurse) preventive vaccinations. Register them in a special journal.

6. Dispensary supervision of children taken into account. Improving their health together with specialist doctors. Analysis of the effectiveness of medical examination.

7. Examination and rehabilitation of children before their admission to pre-school institutions and schools.

8. Registration and selection of children for sanatorium-resort treatment.

9. Medical care for children at home on the day of the call. Appointment of physiotherapeutic methods of treatment, exercise therapy. Observation in the process of treatment, rehabilitation, after hospitalization, etc. a Sick child of the first year of life should be observed daily.

10. Hospitalization on indications. If necessary, all measures are taken to immediately hospitalize the child.

11. Informing management about severe patients who are not hospitalized for any reason.

12. Notification of Certra hygiene, epidemiology and public health for infectious disease, anti-epidemic measures.

13. Improving professional skills. Introduction of new methods of treatment in pediatric practice.

14. Sanitary and educational work on the development and education of a healthy child and disease prevention.

15. Maintenance of medical records.

16. Control over the work of a nurse.

Medical work of the pediatrician involves the treatment of children in the clinic and at home, timely hospitalization of children, emergency medical care by the patient regardless of the place of residence, examination of temporary disability, etc.

Preventive work of the pediatrician assumes patronage of the newborn in the first 3 days after discharge from maternity hospital, dispensary supervision of children of a site, carrying out sanitary and educational work, etc.

Anti-epidemic work of a pediatrician includes examination of children before vaccination and monitoring of their condition after vaccination, early diagnosis of infectious diseases, filling in emergency notices and reporting an infectious patient to the Center of hygiene, epidemiology and public health; organization of monitoring of a child who was in contact with a patient with an infectious disease.

Pediatrician district has the right:

1. Make proposals to the management of the enterprise on the optimization and improvement of medical and social assistance, including on his work.

2. Require the management of the institution to assist in the performance of his duties and rights.

3. To receive information from specialists of the enterprise necessary for effective performance of the job obligations.

4. To enjoy labour rights in accordance with the Labour code of the Republic of Belarus.

The duties of the nurse of the children's city polyclinic include:

1. Prenatal nursing for pregnant women.

2. Together with the doctor visiting newborns in the first three days after discharge from the hospital. Study of material,sanitary,hygienic and socio-psychological conditions of the child's life.

3. Regular monitoring of healthy and sick children.

4. Monitoring the implementation of medical appointments by parents.

5. Monthly planning of vaccinations for children not attending preschool. Inviting children for vaccination.

6. Timely organization of medical examinations of children registered in accordance with the plan of preventive medical examinations.

7. Perform at home medical procedures prescribed by a doctor.

8. Assistance in conducting medical examinations (measurement of anthropometric indicators, issuance of prescriptions, certificates, directions, sheets of disability, statements, monitoring the sequence of admission).

9. Interviews with parents on the development and education of a healthy child and disease prevention.

10. Participation in the organization of sanitary and educational exhibitions in the clinic, health corners.

11. Improvement of professional skills.

10.5. Organization of treatment of children at home

When organizing treatment at home, the severity of the child's condition, the nature and course of the disease, the child's age and home conditions are taken into account. At the first visit, treatment is prescribed, the nature of nutrition, care, regimen is determined. If necessary, the child is provided with medicines for 1 reception. Children up to three years of age can be given a prescription for free medication for the entire course of treatment. Children are served at home by the district pediatrician. He works from home 3 hours a day.

Medical care at home is provided to children:

- in primary diseases;

- with acute infectious diseases or suspected infection, as well as children who have been in contact with infectious patients;

- in the General serious condition of the child.

If the condition worsens, the attending physician together with the head of the Department takes measures for hospitalization of the patient. The direction indicates the diagnosis of the disease, the severity of the child's condition, the duration and course of the disease, the treatment and examination, especially the child, contacts with infectious patients.

In the absence of the possibility to hospitalize the child (refusal of parents, quarantine in the hospital, etc.), a hospital at home is organized. If the parents refuse to hospitalize the child, an informed written refusal is issued, on the basis of which a corresponding entry is made in the "History of the child's development".

During treatment at home, the district pediatrician actively visits sick children until full recovery or hospitalization. The frequency and intervals of visits to children are determined depending on the nature and severity of the disease.

10.6. Performance indicators of children's polyclinic

1. Performance indicators.

1.1. The first group of health of children of the first year of life (% of not ill children under 1 year of life).

1.2. Tuberculin tests (%of reactions, indicating the presence of immunity, from the number of tests examined).

1.3. Morbidity of children (number of cases per 1000 children).

1.3.1. Measles.

1.3.2. Pertussis.

1.3.3. Respiratory viral infection.

1.4. The number of days of disability to care for a sick child (per 100 employees).

1.5. Post-neonatal mortality (number of deaths between 28 days and 1 year (365 days) per 1,000 live births).

1.6. In the neonatal mortality rate (deaths at 0-27 days per 1,000 children).

1.7. Rate of early neonatal mortality (deaths on days 0-6 per 1000 children).

1.8. Mortality rate of children aged 1 to 2 years (cases per 1000 children).

2. Indicators of defects.

2.1. Morbidity of children (cases per 1000 children).

2.1.1. Diphtheria.

2.1.2. Polio.

2.1.3. Tuberculous meningitis.

2.2. Mortality of children at home (cases per 1000 children).

2.2.1. From pneumonia.

2.2.2. Acute intestinal infections.

2.2.3. Against accidents.

2.3. The divergence of diagnoses in children in the adolescent network (per 1000 translated children).

2.4. Refusal to issue a certificate of disability for the care of a sick child in the presence of evidence (cases per 1000 children).

2.5. Justified complaints (cases per 1,000 children).

2.5.1. Deontological.

2.5.2. The poor quality of diagnosis and treatment.

2.6. Daily mortality (% of deaths).

2.7. Mortality at home (%of deaths).

2.8. The overall incidence of children (cases per 1000 children).

2.9. Group III health of children under 15 years of age (%). From them:

2.9.1. with respiratory diseases (% of the number of children III health group),

2.9.2. with diseases of the cardiovascular system,

2.9.3. with diseases of the nervous system,

2.9.4. with endocrinological diseases,

2.9.5. with kidney and urinary tract diseases.

CHAPTER 11
ORGANIZATION OF THE ACTIVITIES OF THE STATE SANITARY SUPERVISION SERVICE

11.1. Sanitary inspection, definition, types

Sanitary supervision is a system of state supervision over the unconditional implementation by all departments, organizations and citizens of sanitary rules and standards approved in the prescribed manner, with the right of the Chief State Sanitary Doctor (district, city, region, republic, independent state) to apply appropriate sanctions to violators of the rules.

State sanitary inspection is carried out by the ***sanitary-epidemiological service***.

Preventive sanitary inspection has as its task to prevent violations of sanitary rules and norms at all levels of the national economy. To this end, sanitary authorities monitor the layout, development and improvement of populated areas; design, construction and reconstruction of industrial enterprises and municipal institutions, as well as enterprises producing and selling food; design and construction of water supply systems and sewage systems, transport enterprises, dwellings, etc.; review and give opinions on draft standards and technical conditions on new types of raw materials, food products, industrial products, building materials, polymeric and synthetic materials and products from them, on the introduction of new technological processes, types of equipment, instruments and working tools that can render harmful health effects; develop state water standards; monitor the implementation of measures for the protection of atmospheric air, water bodies and soil from pollution by industrial waste, measures to ensure radiation safety; implement measures for sanitary protection of the territory from the introduction and spread of quarantine and other infectious diseases, to ensure the sanitary and epidemic well-being of the country.

The ***current sanitary supervision*** is a daily monitoring of the implementation of sanitary norms and rules by state, cooperative, public institutions and enterprises, as well as individuals engaged in self-employment. First of all, this control is carried out at the enterprises of the food industry, public catering, trade and water supply. Serious violations in this field of activity are always dangerous in their consequences. The implementation of sanitary supervision includes sanitary inspection of enterprises (institutions), sampling for laboratory research (sanitary-bacteriological, sanitary-chemical, radiological and other methods) of food, water, air, soil; study of room illumination, noise in them, pollution of indoor air, etc.

Decisions and conclusions of the main state sanitary doctors of districts, cities and regions are obligatory for officials, state bodies, enterprises, institutions and organizations, for all citizens.

When carrying out state sanitary inspection, chief state sanitary inspectors have the right to take disciplinary measures or impose a fine, and, if necessary, transfer materials to the prosecutor's office to bring persons guilty of violating sanitary rules and norms to criminal responsibility.

The practice of state sanitary supervision in communal hygiene, occupational hygiene, hygiene of children and adolescents, food hygiene, and others is identical in nature to the requirements described above (compliance with hygienic norms and rules) and is distinguished only by the features inherent in the controlled object.

The state sanitary supervision of public utilities provides for monitoring the implementation of sanitary norms and rules for the protection of the environment: water supply sources, air, soil; control over the construction of sewage treatment plants and their operation, all types of civil engineering, cleaning of populated areas, planning solutions for building and reconstruction of populated areas.

The state sanitary inspection in the field of industry and occupational health ensures control over compliance with sanitary legislation in various industries. It is aimed at improving working conditions and preserving the health of workers, strict adherence to established maximum permissible concentrations of various chemicals, dust, hygienic assessment of new technological processes and equipment, and assessment of the health of workers.

The state sanitary inspection of children's and adolescent institutions is aimed at developing measures to improve the conditions for the education and upbringing of children and adolescents, improve their health, physical development and prevent morbidity. It includes monitoring compliance with nutritional standards and health regulations in the provision of land for the construction of children's and teenage institutions, in the construction, reconstruction of buildings and in the process of their operation; when reviewing and agreeing on draft standards and other regulatory and technical documentation on children's and teenage furniture, visual aids, school textbooks, clothing, shoes, toys, etc .; in determining the occupations to which adolescents may be admitted, and the conditions of the working environment and regime in which adolescents may be educated and trained.

Sanitary supervision is carried out in preschool institutions, secondary schools, boarding schools, specialized children's institutions, vocational secondary schools, specialized secondary schools, sanatoriums and summer health institutions for children and adolescents, boarding schools at rural schools, children's clubs and palaces, technical schools. stations, cinemas, theaters, libraries, sports and tourist facilities, toy stores, etc. The basis for

assessing the effectiveness of sanitary supervision is the analysis of data from dynamic monitoring of the health status, physical development and morbidity of the younger generation, as well as the sanitary condition and maintenance of institutions for children and adolescents,

The state sanitary inspection at the objects of production, storage, transportation and sale of food products ensures control over the observance of sanitary norms and rules excluding the use of poor-quality food by the population and the occurrence of epidemic or toxicological complications of alimentary origin.

11.2. Precautionary and current sanitary inspection

Preventive sanitary supervision in the field of food hygiene provides for monitoring compliance with sanitary rules and standards in the provision of land for the construction of food enterprises, as well as in the design, construction and reconstruction of enterprises; when commissioning newly built, reconstructed, capitally converted enterprises producing and selling food, when designing and putting into operation new technological lines, units, machines, equipment for production, storage and sale of food, including the materials from which it is made equipment, with the release of new types of food products, dishes, containers, inventory, packaging materials, as well as coatings for process, refrigeration, commercial equipment in contact with food.

All data on the construction and reconstruction of the enterprise are regularly recorded in the *"Card of preventive sanitary supervision of the object under construction, under reconstruction"*. When the camp of the student construction, agricultural detachment and the detachment of labor associations of high school students is commissioned, information about food-processing facilities is entered into a special act – a *sanitary passport*.

Current sanitary supervision is aimed at monitoring compliance with sanitary rules and standards of sanitary maintenance of food objects; the mode of production, storage, transportation, sale of food; use of equipment, inventory, packaging, packaging materials, dishes for food; the use of food additives in food production; the processing of food crops and farm animals by pesticides, as well as the permissible residual amount of pesticides in food products; measures to prevent food poisoning and foodborne diseases, intestinal infectious diseases; measures for the introduction of rational nutrition of the population and the fortification of ready meals and food products of mass consumption.

One of the important issues in the current sanitary supervision is the control over the nutrition of organized groups – workers of industrial enterprises and construction, students of higher educational institutions, etc .;

for the nutrition of children and adolescents; for therapeutic and prophylactic nutrition of persons working in industries with harmful working conditions, monitoring dietary nutrition.

11.3. Activities, goals and objectives of the state sanitary inspection

State sanitary and epidemiological supervision by the sanitary and epidemic service in the country (for example, the Republic of Belarus) includes:

• observation, assessment and prediction of the state of public health in relation to the quality of its habitat;

• identification and determination of the causes and conditions for the emergence and spread of infectious and mass non-communicable diseases, as well as poisoning; the development of proposals for the implementation of measures to ensure the sanitary and epidemic well-being of the population;

• exercising control over the conduct of hygienic and anti-epidemic measures, over compliance by enterprises, organizations and citizens with current sanitary regulations;

• application of preventive measures for sanitary offenses and bringing to justice the persons who committed them;

• maintaining state records of infectious, occupational and mass noncommunicable diseases and poisoning of the population due to the adverse effect on human health of environmental factors and other sanitary statistics.

The main purpose of the State Sanitary Surveillance Centers is to ensure the sanitary and epidemiological well-being of the population of the region. The main tasks of the Center:

• monitoring the compliance of organizations, individuals, including individual entrepreneurs, with the requirements of the country's legislation governing the issues of the sanitary and epidemiological welfare of the population;

• implementation of measures to prevent diseases by preventing, detecting and preventing violations of the country's sanitary and epidemiological legislation;

• preparation and submission to the government bodies of proposals for the implementation of the country's sanitary and epidemiological legislation, ensuring the sanitary and epidemiological welfare of the population;

• implementation of state sanitary and hygienic expertise;

• hygienic education and training of the population;

• formation of a healthy lifestyle among the population.

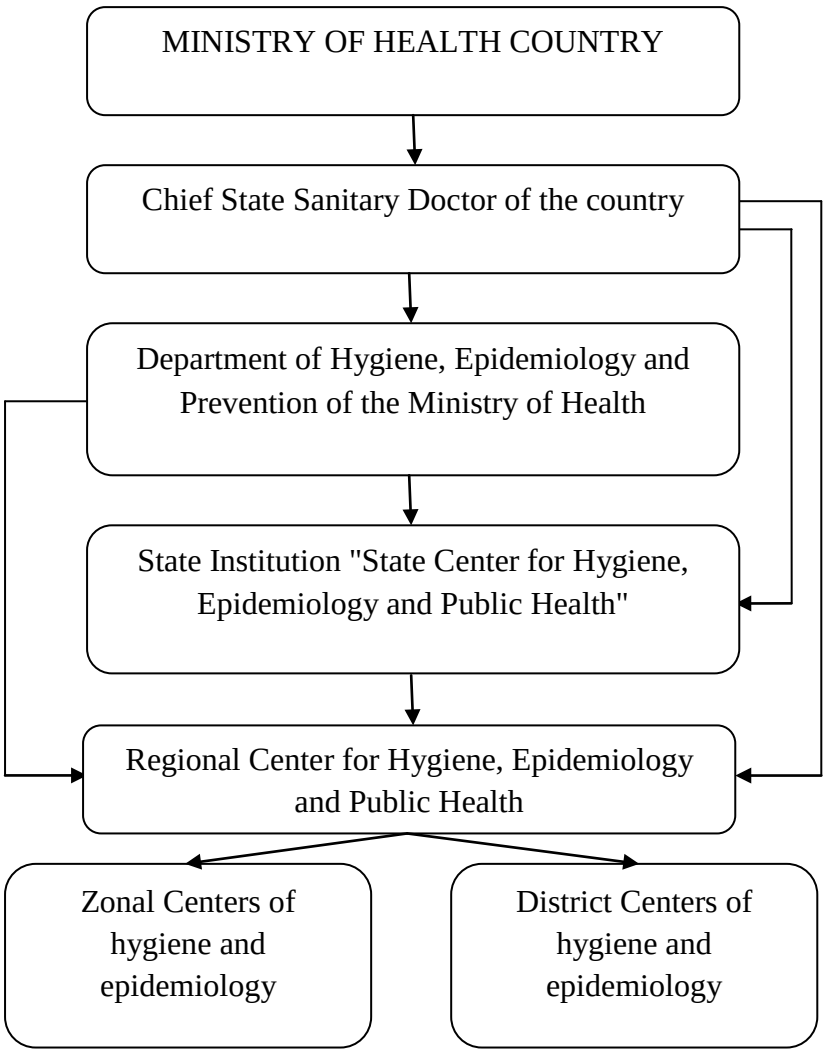
11.4. The structure of the state sanitary inspection service

The system of bodies and institutions carrying out state sanitary inspection is headed by the Chief State Sanitary Doctor of the country.

The system of bodies and institutions of the Ministry of Health of the country exercising state sanitary inspection includes:

- Department of Hygiene, Epidemiology and Prevention of the Ministry of Health;
- State, regional centers of hygiene, epidemiology and public health;
- Regional urban, district, zonal, district urban centers of hygiene and epidemiology;
- disinfection and sterilization centers;
- preventive disinfection centers;
- Scientific and practical centers.

The approximate structure of the bodies and institutions engaged in state sanitary inspection:



The chief doctors of the Center for Hygiene, Epidemiology and Public Health are at the same time the main state sanitary doctors of the respective administrative territories.

11.5. The concepts of supervision and control, its types

Control is a necessary element of management; in the process of control, management structures not only reveal the facts of violations, but also analyze their causes and outline ways to eliminate them.

Supervision is a narrower concept than "control" by sphere of influence, since its task is to identify the violation and prevent it by applying the stipulated sanctions (prescription, suspension of activities, imposition of fines, etc.).

Types of sanitary inspection

State sanitary supervision – the activity of state bodies and institutions aimed at preventing diseases by preventing, detecting and preventing violations of sanitary legislation; It is also being held at the facilities of the Ministry of Defense, Interior, State Security Committee, Border Guard Committee, Belarusian Railway.

Departmental sanitary inspection canceled.

Types of sanitary control

Industrial sanitary control, including laboratory, is carried out in organizations in order to improve working conditions, training, and recreation of people, in order to control the quality of products with the subsequent issuance of documents certifying its quality.

Public sanitary control is carried out by public associations, which have the right to inform the bodies of state sanitary supervision about revealed violations of sanitary rules.

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PUBLIC HEALTH AND HEALTH SERVICE

пособие
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